TABLE OF CONTENTS

INDEX OF TABLES

INDEX OF FIGURES

INDEX OF CHARTS

INDEX OF BOXES

ABBREVIATIONS AND ACRONYMS

AFD	Agence Française de Développement (French Development Agency)
BCR	Benefit-Cost Ratio
BFS	Bus Franchise Scheme
BPP	Bureau of Public Procurement
BRT	Bus Rapid Transit
CAS	Country Assistance Strategy
CBO	Community Based Organizations
CEO	Chief Executive Officer
CMS	Church Missionary Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CBD	Central Business District
CPAR	Country Procurement Assessment Review
CPS	Country Partnership Strategy
CQS	Consultants' Qualifications Selection
CRM	Customer Relationship Management
DA	Designated Account
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERGP	Economic Reform and Governance Project
ERR	Economic Rate of Return
ESMF	Environmental and Social Management Framework
FAD	Financial and Accounts Department
FGN	Federal Government of Nigeria
FM	Financial Management
FMS	Financial Management System
FPM	Financial Procedures Manual
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GPS	Global Positioning System
IAU	Internal Audit Unit
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
IDA	International Development Association
IDF	Institutional Development Fund
IFRs	Interim Unaudited Financial Reports
IRR	Internal Rate of Return
ISR	Implementation Status Report
ITS	Intelligent Transport Systems
KPI	Key Performance Indicator
LAMATA	Lagos Metropolitan Area Transport Authority LASTMA Lagos State Traffic Management

	Authority
LCDAs	Local Council Development Areas
LGA	Local Government Area
LRT	Light Rail Transit
LASG	Lagos State Government
LSMT	Lagos State Ministry of Transportation
LSMPT	Lagos State Ministry of Public Transportation
LSMWI	Lagos State Ministry of Works and Infrastructure
LSMWT	Lagos State Ministry of Works and Transport
LUTP	Lagos Urban Transport Project
M&E	Monitoring and Evaluation
MD	Managing Director
MDG	Millennium Development Goals
MOF	Ministry of Finance
MOT	Ministry of Transport (or Transportation)
MOW	Ministry of Works
NCB	National Competitive Bidding
NGOs	Non-Governmental Organizations
NMT	Non-Motorized Transport
NPV	Net Present Value
NURTW	National Union of Road Transport Workers
OSP	Operations Service Plan
PAP	Project Affected Person
PDO	Project Development Objective
PEFA	Public Expenditure Financial Accountability
PEMFAR	Public Expenditure Management and Financial Accountability Review
PFM	Public Financial Management
PFMU	Project Financial Management Unit
PPP	Public Private Partnership
PRP	Procurement Reform Program
PRSP	Poverty Reduction Strategy Paper
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SBD	Standard Bidding Documents
SIL	Specific Investment Loan
SOE	Statement of Expenses
TPU	Transport Planning Unit
VKT	Vehicle Kilometer Travelled
VOC	Vehicle Operating Cost
VOT	Value of Time
WB	World Bank

Lagos State Government
Lagos Metropolitan Area Transport Authority (LAMATA)

Implementation Completion Report LUTP 2

Draft Final Report

1. INTRODUCTION

The Lagos Metropolitan Area Transport Authority (LAMATA), the implementing agency of the Lagos Urban Transport Project Phase 2 (LUTP 2) commissioned Sages Consult Limited (the Consultant) on March 6, 2017, to prepare the Implementation Completion Report (ICR) in respect of the LUTP 2. The contract for the ICR is in satisfaction of requirements of the credit terms of the LUTP 2. The LUTP 2, a follow-up on the LUTP 1 (also implemented by LAMATA) became effective May 16, 2011 and is set to close on May 31, 2017, thus necessitating the preparation of the ICR.

The Consultant submitted an Inception Report to LAMATA (the Client) on March 13, 2017 and an Interim Report on April 19, 2017 as the first and second deliverables respectively of the ICR Consultancy. The Consultant has prepared this Draft Final Report as the third deliverable to the Client on the Consultancy. At this stage, the Consultant having completed desk review of secondary data, undertaken field survey and analysed data collected can give a report on all aspects of the scope of work as contained in the Terms of Reference (TOR) and can also enumerate lessons learned and make recommendations for future outlook of the LUTP.

1.1 STRUCTURE OF THE REPORT

The Report is 5 Parts as follows:

Part 1: Introduction; Project Background, Methodology of the ICR etc.
Part 2: Situation Appraisal of the Institutional Capacity of LAMATA
Part 3: Findings of the ICR on Individual Project Components.
Part 4: Evaluation of Achievement of Project Development Objectives and Key Performance Indicators (KPIs) and Economic Analyses of Key Project Components
Part 5 Overall Project Performance, Lessons Learnt, Recommendations and Conclusions.

1.2 THE LUTP 2

The LUTP 2 is a follow up to LUTP1. It is a transport development project for Lagos metropolitan area designed to extend the gains of the LUTP1 under 4 components including the extension of the existing BRT corridor (Mile 12-CMS) to Ikorodu from Mile 12. The LUTP 2 is financed by a total of USD329.5m comprising a collaborative credit of USD190m by the International Development Association (IDA), USD100m by the French Development Agency (AFD), $4.5m grant from the Global Environment Facility (GEF) and a counterpart contribution of $35m by the Lagos State Government (LASG).

- Approved June 29, 2016
- A follow up to LUTP 1
- Became effective May 16, 2011
- Mid-term review, April 2013
- Total Funding is $329.5m
- Multi-agency financed:
  - $190m-International Development Association (IDA)
  - $100m-French Development Agency (AFD)
  - $4.5m -grant from Global Environment Facility (GEF)
  - $35m -LASG

1.3 PROJECT BACKGROUND AND SETTING

Lagos is the largest city in sub-Saharan Africa and the sixth largest city in the world and although the population was conservatively put at 9 million in the 2006 Nigerian census, the LASG has disputed this figure with the Lagos Central Bureau of Statistics putting the population at 17.5 million as at 2008. Lagos

is believed to actually have a population estimated at 21 million in 2015[1] and with a growth potential of about 6% per annum. At this growth rate an additional population of over 1.0 million will be added to the city annually. The severity of the accompanying problems can only be imagined considering that the total population of Abuja FCT was only 1.4 million in the 2006 provisional Census, thus, about 70% of that population is what is being added to Lagos yearly. At the rate of population growth, Lagos was already tipped to be the third-largest city in the world by 2015.

Several factors have stimulated and continued to impact the population growth of Lagos; the growth of Lagos megacity beyond the physical boundaries of the State of Lagos means that large conurbation areas have emerged with the neighbouring Ogun State from at least two different geographical points; along the Sango Otta/Ifo axis and along the Lagos/Ibadan Expressway. Lagos has the seaports, the largest international airport and is host to the largest manufacturing sector and provides employment for over 45 percent of the skilled manpower of the country; the commercial sector is dominant; Lagos is presently the principal gateway to Nigeria, the Lagos and Port Harcourt seaports handle more than 80% of the export goods, and over 90% of the import goods with Lagos accounting for higher port activities than Port Harcourt. Lagos provides the most active International and local Airports in Nigeria and most corporate organisations like banks, insurance companies, manufacturing concerns, trading and contracting businesses, have their corporate head offices in Lagos. Lagos thus has the highest concentration of commercial activities in Nigeria. It has been estimated that more than 45% of the total industrial workforce in Nigeria is employed in Greater Lagos, employed partly by 50% of the major industries in Nigeria that are located in the Metropolis.

By the state creation exercises of 1976 and 1987, some of the parts that belonged to the old western states were fully ceded to Lagos State. As the erstwhile administrative capital of the country, Lagos inherited considerable resources; comprising especially infrastructure services, including railway, motor and bus terminals, the nation's major seaport and a concentration of industries from the Federal Government. Although most of the infrastructure had become dilapidated and disused over the years, part of the gains of democracy in the past 18 years has been that Lagos has witnessed infrastructure renaissance under the last three successive civilian administrations.

1.4 THE LAGOS URBAN TRANSPORT CONTEXT

Lagos Metropolis need to be provided infrastructural facilities including roads, transportation, accommodation, water supply, electricity supply, sanitation, means of communication because of its burgeoning population. The existing infrastructure facilities remain inadequate despite the efforts of the LASG in the past decade and a half. Presently, Lagos is experiencing problems of rapid urbanization and population growth which is evidenced by high poverty rates, declining quality of life, environmental degradation, unemployment, and rising youth restiveness as prominent in the so-called creeks in Ikorodu and along the oil and gas pipeline installations across the State. These problems underpin the need for urgency in addressing the issues. Investment in the transportation sector is imperative because it drives development and it also impacts positively on wealth creation through efficiency of transportation of persons, goods and services. Lagos is also blessed to have opportunity of inter-modal transportation

[1] New York Times

because of the seas and lagoons that abound in the city and the rail infrastructure that remains from the period when it was the federal capital upon which it can and is building additional transportation network.

FIGURE 1: POPULATION EXPLOSION LOOMS IN LAGOS-SOURCE VANGUARD NEWSPAPER SEPTEMBER 5, 2014

The various economic activities in Lagos generate a two-way passenger traffic crossing the three bridges between the mainland and Lagos Island. The total road network in Lagos extends to 5,180 kilometers of which 591 kilometers (11.4%) are federal roads, 2,743 kilometers (53.0%) are state roads, and 1,846 kilometers 35.6%) are local government roads. Expenditure on transport by households is only second to expenditure on food of the household budget. The poor and the low income earners that form the bulk of the public transport passengers, live far away from their working places and thus have a high level of vulnerability which is greatly impacted upon by all too-known challenges in the transport sector.

The World Bank (WB) having been appraising the Lagos Transport Sector for significant period identified the key issues in the city transport system as: (a) insufficient and poorly managed and regulated services and infrastructure; (b) lack of clear and coherent policies; and (c) weak and disorganized institutions. Consequently, in central urban transport context the problems confronting Lagos can be summarized as follows: a growing urban population inadequately served by the transport system, declining standards of public transport, overlaps and conflicts among the agencies responsible for planning and implementing transport solutions, unchecked growth in the use of minibus services, growing dependence on private transport (cars and motorcycles), increasing congestion on the roads, inadequate and deteriorating transport infrastructure, and poor facilities in support of non-motorized transport (walking and bicycling).

Like in most cities in developing countries, authorities have had difficulty in meeting service demands of the growing population, particularly the poor, who are most dependent on public provision of water, electricity, transport, and other services. But the effects of rapid growth affect all segments of society. The absence of policies on land use and economic development has led to urban sprawl, which multiplies the challenges posed by rapid growth. The declining population density associated with urban sprawl has increased travel distances and pushed up the price of public transport. Again, these developments affect the poor disproportionately, often effectively excluding them from work and social services. Meanwhile, the rising use of private cars has choked the roads, endangering the safety of pedestrians and the health of city residents who breathe in automobile emissions.

The transport infrastructure and services in Lagos remain at levels that supported a population of no more than six million some 20 years ago. The density of the road network (about 0.4 km/1000 population), for example, is quite low even by African standards. The provision of public transport is highly fragmented with multiple private operators, operating small buses of poor quality in an environment devoid of management and coordination by a regulatory authority. Despite the size of the city, there are only a few organized mass transit systems that have been introduced in the past few years—the Bus Rapid Transit (BRT) and LAGBUS and a few ferry routes in the inland waterway system that offer alternative non-road based commuter services. Bus fares are high (average fare of US$1 per trip) which consume over 20 percent of the average household disposable income. Congestion is a major issue in the city affecting the cost of production, the quality of life, and opportunity cost of time consumed in traffic jam.

FIGURE 2: LAGOS TRAFFIC CONGESTION-THE OLD NORM

source: http://www.lagos1city.com/wp-content/uploads/2014/11/image3.jpg

Pursuant to the above and in an attempt to solve the transport problems in metropolitan Lagos, the LASG has used the LUTP1 and LUTP2 as instruments to address the three key issues in the Lagos city transport system which remain:

a) “insufficient and poorly managed and regulated services and infrastructure;
b) lack of clear and coherent policies; and
c) weak and disorganized institutions”

With the implementation of the LUTP1, the precursor of the current LUTP 2, the Bus Rapid Transit (BRT) was introduced across the Mile 12-CMS and this signaled the seriousness and commitment of the LASG in transforming the transport system. A prior herald of this transformation agenda was in the LASG Private partnership with the LAGBUS which had a bus fleet that were allowed to ply designated routes. There were also a a few ferry routes in the inland waterway system offering alternative non-road based commuter services. Reduction of bus fares was a high prior of the LUTP1 intervention as the amount of money paid for commuting was recognized as one of the problems facing the urban poor, consuming over 20 percent of the average household disposable income. Traffic gridlock was also a major issue leading to high cost of production and poor quality of life.

1.5 LAMATA IN CONTEXT OF THE LAGOS STATE TRANSPORT AGENDA

In response to the issues in the sector, the LASG formulated a transport sector strategy and developed a master plan, and implemented the LUTP1 with the overall objective of improving the provision of transport services in the Lagos metropolitan area, in particular for the public transport users and the poor. The project was planned to benefit all transport users in Lagos Metropolitan Area, a population estimated in 2010, at least of 12.8 million. In particular, the users of public transport services, and in general the poorer population (estimated at 9.6 million), would benefit from the LUTP1. In a Lagos State Poverty Mapping Survey conducted in 2013, it was a key finding that for those considered as being well paid and on an average salary of about N50,000.00 per month, 58 % of this category of workers spend at least 15% of their income on transportation alone.[2] This finding in 2013 after the implementation of the LUTP1, confirmed a key KPI of the LUTP1 that the first BRT resulted in income savings derived from lower expenditure on transport. In fact, the ICR on the LUTP1 found that across all cadres of income earners that use the BRT, there was income savings and that there was also time savings by commuters and that satisfaction with the public transport system has increased. Furthermore, the project also had positive impact on road safety.

Records from LAMATA shows that already by 2011, after the the LUTP1 was implemented, the first phase of the BRT from Mile 12-CMS, had transported a total of about 196 million passengers since inception of the project[3]. Details of the last quarter of 2010 is given in Table 1 below to show a snapshot of the demand of the BRT services:

TABLE 1: RIDERSHIP DETAILS AT CLOSE OF LUTP1

Months	Ridership	Revenue (=N=)
October	2,549,330	218,821,000.00
November	2,549,988	221,578,410.00
December	2,568,567	225,502,190.00
Total	7,667,885	665,901,600.00

In alignment with the aims and objectives of the LUTP1, LAMATA was able to provide an overall vision and strategic direction that addressed the long neglected transport needs of the Metropolis. The strategies that were introduced also assisted LAMATA in coordinating the activities of the different executing agencies and provided a common and consistent platform for the implementation of the project. Credit must be given to LAMATA that in the implementation years of the LUTP 1, the organization was successful in:

(a) preparing a strategic long-term plan for the transport sector in Lagos;
(b) coordinating activities of the multiple agencies involved in the sector;
(c) rationalizing motor vehicle tax administration, resulting in a substantial increase in revenues;
(d) maintaining, upgrading, and rehabilitating 632 km of the declared road network;
(e) implementing a pilot BRT "Lite" system from Mile 12 to Church Missionary Society (CMS;
(f) rehabilitating four jetties;
(g) creating over 1.3 million person-days of employment; and
(h) most importantly, changing the attitude among users towards bus transport system.

[2] Sages Consult Report on Poverty Mapping of Lagos State: 2015
[3] Financial Monitoring Report October to December 2011

(i) building an organization that fills the much sought after agency that can formulate transportation policies as well as implement projects; a gap which has hitherto not been available within capabilities of the works and transportation Ministries of the LASG

The success of the BRT raised expectations among city residents and encouraged the authorities to scale-up a reform and investment program that will address the demand of unserved communities. LAMATA, with support of the LASG prepared a transport sector policy and a strategic plan to address the mobility needs of the population in a clean, safe, and affordable manner, the objective being to create an integrated multi-modal transport system. Some of the key elements of the plan are: (a) extension of BRT to other corridors, including the Oshodi- Mile 12-Ikorodu and Oshodi-Mile 2-Obalende axis. The rationale behind selection of these corridors is based on a comprehensive network analysis, traffic flows and ease of implementation; and (b) the construction of two commuter rail lines—Agbado to Marina (Red line on an existing railroad right-of-way) and the Okokomaiko to Marina (Blue line).

The LASG requested the World Bank's support for extension of the BRT corridors while the commuter rail lines will be constructed using a Public Private Partnership model, with infrastructure being funded by the LASG under a design/build contract at a cost of over US$1 billion and the actual railway operations being funded and managed by the private sector under a concession agreement. The implementation of the BRT Corridor from Mile 12 to Ikorodu comes under this programme. The LAMATA has since the commencement of the project been taking periodic readings of the passengers traffic, travel times, fares and data on all KPIs which will form the basis of the review under this report. be reviewed extensively in this report.

Now that the LUTP 2 is coming to a close, LAMATA has commissioned Sages Consult Limited to carry out a Consultancy Service for the preparation of an Implementation Completion Report on the LUTT 2, with the aim of comprehensively reviewing the LUTP interventions that were made under the project between 2011 and 2017.

1.6 LUTP2 PROJECT DEVELOPMENT AND GLOBAL OBEJECTIVES AND PDOS

The project's development and global environment objectives are fundamentally the same:

- "to improve the capacity to manage the transport sector in the Lagos metropolitan area and enhance efficiency and effectiveness of the public transport network, through a combination of traffic engineering measures, management improvements, regulation of the public transport industry, and expansion and enhancement of BRT system".

The specific project development objective is to:

- "improve mobility along prioritized corridor; and promote a shift to more environmentally sustainable urban transport modes" while "the specific global environmental objective is to promote an incremental shift to more environmentally sustainable urban transport modes among users with relatively high carbon foot print."

1.7 ICR OBJECTIVES

1.7.1 OVERALL ICR OBJECTIVE

The ICR must comprehensively examine all LUTP 2 interventions made under the IDA and AFD funded project components, including the extended Bus Rapid Transit (BRT) scheme from Mile 12 to Ikorodu as funded by the credit.

1.7.2 SCOPE OF WORK

The scope of Works are, but not limited to the following:

a) Project Monitoring and Evaluation (M&E)
b) Economic Analysis for BRT
c) Economic Analysis for DRN
d) Economic Analysis for Studies Conducted
e) Economic Analysis of New Ikeja Bus Terminal; and
f) Borrower's Assessment of General Performance

1.8 LUTP 2 PROJECT COMPONENTS

A comprehensive description and review of the project components will be undertaken at later stages of this report being one of the key expectations from the ICR as specified in the TOR, but suffice at present to present a summary of the components as background.

Component 1: Institutional Development	Focuses on capacity strengthening of LAMATA for continuing to provide overall vision and strategic planning basis for transport planning, regulation, monitoring, and administration and coordination of sector-wide management; and building capacity of bus operators. The Component would finance goods, works, Consultants' services, training operating cost for LAMATA to carry out its functions and for goods, training and consultancy services for bus operators.
Component 2: Public transport and traffic management:	The Component would finance BRT infrastructure construction and supervision, including interchange and traffic management, at Oshodi-Mile 2-Obalende, investments in Intelligent Transport Systems (ITS), and improvements in safety; pedestrian facilities; mass transit alternative analysis studies along five corridors; and development of bus feeder system including stations and terminals. The GEF component will specifically finance BRT consultation, communications, and media strategy for better acceptance of the new approaches. The French Agency for Development (AFD) component will finance BRT investments along Oshodi-Mile 12-Ikorodu corridor.
Component 3: Road network improvement & management:	This component will finance routine maintenance of the Declared Road Network (DRN); periodic maintenance of about 12 km of strategic roads which are degraded but structurally still intact to ensure that they remain in a maintainable condition; and rehabilitation of about 5 km of strategic roads identified to be structurally damaged. Under this component, LAMATA will further enhance capacity of the Pavement Management System. (The roads under this include the Wempco Road, Ogba and the Akin Adesola Road in Victoria Island)
Component 4: Project management and system monitoring:	This component would finance technical assistance, equipment, vehicles, office equipment, and other operational support for monitoring project progress and, on an ongoing basis, transport system supply, demand and performance; institutional, technical, procurement, and financial audit; project outcome monitoring in terms of transport (including safety), environment, social, and capacity development indicators.

1.9 PROJECT COST BY COMPONENTS AND SOURCE OF FINANCING (US$ MILLION)

TABLE 2: PROJECT COST PER COMPONENT

	Component	Total	LSG	IDA	AFD	GEF
1	Institutional development and capacity building	34.0	10.0	23.0	0.0	1.0
2	Improvement of public transport infrastructure and enhancement of traffic management	236.5	0.0	133.0	100.0	3.5
3	Improvement of Lagos State metropolitan road network	50.0	25.0	25.0	0.0	0.0
4	Project management and system monitoring	9.0	0.0	9.0	0.0	0.0
	Total Project Cost	329.5	35.0	190.0	100.0	4.5

1.10 CONSULTANT'S ICR TEAM

The following staff-members are the core Consultant's staff on the project. Many other support staff and fieldwork staff (enumerators) are deployed on the project:

TABLE 3: ICR STAFFING TABLE

	ICR Team	Function/Role
1	Dipl.-Ing. Oluwole Komolafe	Lead Consultant
2	Mrs. Iyabo Arinola Awokoya	Senior Sociologist
3	Engr. JWE Metibaiye/Engr. Femi Banire	Civil Engineers
4	Dr. Olawale Awotide	M&E Specialist
5	Dr. Charles Asenime	Transport Economist
6	Engr. Ibikunle Odufote	Traffic Engineer
7	Mr Oluwole Akiyode	Environmental Specialist
8	Ms Moronke Azeez	Sociologist

1.11 ICR DELIVERABLES

In accordance with the TOR and the contract terms for the ICR, the following deliverables are expected from the Consultant at intermittent stages of the contract. The first and second obligations having been met, while others are on course and will follow on schedule:

- Inception Report
- Interim Report;
- Draft Final Report; and
- Final Report.

1.12 OVERVIEW OF EVALUATION ISSUES AND METHODOLOGY

The following approach, which the Consultant endorsed for the ICR is being used to guide the process. The consultants have achieved more milestones since submitting the Inception and the Interim Reports and commencing the field survey. Activities are progressing according to the work schedule and the consultant continues to track the milestones to ensure all activities of the ICR are time-bund and realized.

1.13 PROJECT FUNDING

The Funding Structure of the project is as follows:

TABLE 4: PROJECT FUNDING

Institution	Works		Goods		Consultancy & Training	Operating Cost
	Foreign Exp.	Local Exp.	Foreign Exp.	Local Exp.		
IDA	100%	100%	100%	100%	100%	0%
AFD	100%	100%	0%	0%	0%	0%
GEF	0%	0%	100%	100%	100%	0%
LSG	0%	0%	0%	0%	100%	100%

The moratorium period for the IDA loan is 10 years with repayment of both the Principal and the Interest commencing on August 15, 2020 and ending in 2030. The repayment of the AFD component aspect of the loan will commence in October 2018 and end in April 2031, while the interest payment has commenced since April 2013.

The loan and grant disbursement arrangement to the project entails that Credits will be on-lent and the Grant component will be on-granted by the Federal Government of Nigeria to the Lagos State Government, who will on-grant both to LAMATA pursuant to the Subsidiary Agreement which was signed to this effect. The fiduciary obligations of LAMATA as the Project Implementation Entity are documented in the Project Agreements between the IDA and LAMATA, and between the International Bank for Reconstruction and Development.

Because LAMATA will undertake procurement and financial management for activities to be carried out for the benefit of the Kano State Transport Authority, a Memorandum of Understanding (MOU) on disbursement under GEF was signed between the Lagos State Government (LAMATA) and Kano State Government (Kano State Transport Authority) outlining the activities to be carried out on behalf of Kano State by October 29, 2010.

1.14 METHODOLOGY FOR THE ICR

The Consultant endorsed the Approach contained in the following Table for the ICR. Further details on the approaches are provided in the report, where deemed necessary.

1.14.1 GENERAL METHODOLOGY FRAMEWORK

TABLE 5: METHODOLOGY FOR THE ICR

S/N	Activities	Methodology	Details/Degree of Output
1.	Meetings with Client	Meetings with the Client was a recurrent activity. Apart from the essential "kick-off" meeting at inception, there have been many interviews with key staff of LAMATA in all the Directorates and Units and an interview with the Managing Director as well. Many telephone conversations and exchange of e-mail correspondence have taken place as well.	• Copious body of documents made available for desk review. • All grey areas in implementation of various LUTP2 components were resolved. • Continuous interrelations helped in fostering seamless fieldwork as LAMATA staff were able to connect stakeholders with ICR Team.
2.	Desk Review	The Consultant has undertaken in-depth study of all the secondary data collected from the client including:	• Desk review shaped the methodology of the field survey and use of the different experts on the ICR Team

		• The PAD • STMP • Value of Time and Elasticity of Transport Study • Freight Demand Study • Mass Transit Alternative Analysis Study • Bus Route Network Study • Transport Planning Units Study • Kano Study on Alternate Analysis • Kano investigation of 2 and 3 wheelers • Kano Pre-feasibility, etc.	• All studies conducted under the LUTP2 were reviewed and findings on the same are contained in the ICR Report. • Review of the PAD gave insight into original project components and provided a baseline with which to ascertain changes thereafter • Desk review informed the choice of the socioeconomic and beneficiary studies undertaken along the project corridors • Safeguards desk review and the Media Unit activities informed the sociology expert's survey on PAPs and Gender and Vulnerable Groups.
3.	Survey Instruments	Questionnaires were prepared to collect both quantitative and qualitative data depending on the evaluation of the component specific sector.	4 survey instruments in total were used for the field surveys: (a) Household survey questionnaire (b) Socio-economic survey using Beneficiary Assessment instruments (2) (c) Safeguards/ Gender & Vulnerable groups questionnaire (d) Observation and Checklist of issues and questions for FGD (2)
4.	Pilot Survey	Survey instruments were pre-tested among a pilot sample of respondents. Enumerators were trained on how to administer questionnaires. Content validity was conducted on all instruments in line with the TOR. The questionnaires were scrutinized to ensure that all relevant information were collected from the field without the need for a return call.	The validity of the instruments was assured in the main because the pilot survey showed the extent to which what they were supposed to quantify were validated and areas of ambiguity were corrected for the main survey..
5.	Field survey	Field surveys were undertaken in the following manner: • Beneficiary Assessments conducted as follows: o Mile 12-Ikorodu corridor o Wempco Road corridor o Akin Adesola Road corridor • Household survey o Mile 12-Ikorodu corridor o Wempco Road corridor o Akin Adesola Road corridor • Safeguards/Gender survey o Mile 12-Ikorodu corridor o Terminal Side Interviews (TSI) • Manual Traffic Counts along the three corridors • On board Bus mystery traveller with GPS • Road Side Interviews • FGDs o Communities along Mile 12-Ikorodu corridor o RAP Stakeholders and Market Groups	Details of sample population and response rate for the surveys are contained below. The surveys aided evaluation of the Project Components and Client and key stakeholder performance and beneficiary and non beneficiary opinion on performance among others. The following were the survey outputs: • Data was obtained on kPIs including: • Average travel times • Travel speed and other specific KPIs in the results framework on PDOs • Beneficiary response on project impacts obtained • Impacts both expected and unexpected obtained • Results of RAP evaluated • Female users of the BRT Ikorodu-Mile 12 corridor will be allowed a voice to give feedback on project impacts.
6.	Interviews	In-person interviews conducted with LAMATA staff and with BRT franchisee.	In-depth knowledge of project issues, challenges, constraints, lessons learned and future outlook.
7	Survey Analyses	• Data collation, cleansing and entry • FGD discussions carried out through manual interpretation since the FGDs were guided but broad-ranged discussions on specific issues. • Both Descriptive and quantitative data techniques were employed to analyse data. • All sets of questionnaires were structured, pre coded and designed to be compatible with the **Statistical Package for the Social Sciences** (**SPSS**), version 20 application package. Analysis was done with SPSS and Excel software.	• Quantitative findings achieved in line with TOR issues • Qualitative findings listed and examined for project end results and expected project results and explanations adduced for any impact misses or impact positive surpluses recorded. • Descriptive data such as frequency tables, charts and cross tabular analysis that show socio-economic data of respondents, travel characteristics and other variables indicated in the KPI such as travel time savings, cost savings among others.

1.14.2 EXPLANATIONS OF SOME SPECIFIC APPROACHES EMPLOYED

The LUTP II is expected to benefit users of the roads and communities and businesses surrounding the roads. The identified beneficiaries of the LUTP II interventions were (i) households where the projects were implemented; (ii) employers/employees of businesses that benefitted economically from the improved roads; and (iii) users of the improved roads. Beneficiaries that were individually identifiable were disaggregated by gender, age, and income.

Multi-stage proportionate random sampling was used to select beneficiaries in the project areas. The selected beneficiaries were interviewed using structured questionnaires to obtain information relating to changes in travel time (pre and post project), changes in transport costs, creation of new business opportunities, employment opportunities, traffic situation, and wage information, etc. The survey was complemented with focused group discussions (FGD), key informant interviews and desk review. This approach generated more in-depth responses as to how economic activities had changed since the projects were implemented. Furthermore, rapid commuters and traffic counts were also conducted on Ikorodu-Mile 12 Corridor, WEMPCO road, Akin Adesola road and the TBS Bus Terminal.

The following table presents the rational behind the different types of survey and the approaches used by the Consultant to address the issues.

TABLE 6: SURVEY APPROACHES

S/N	Type of Instrument	Purpose	Sampling Technique	Key factor considered
1	Household Survey	To ascertain the impact of the LUTPs road interventions on the household expenditure and compare after projects results to pre-project results:	Stratified random sampling. i. Identification of streets within the area ii. Every other third house and Household was picked. iii. Questionnaire administration on Household iv. The Head of Households male or female was interviewed, where the head is not around, persons above 18 years were interviewed.	Definition of Households members to be persons who live under the same roof and eat from the same pot. in other words, it refers to persons who have a common purse and under one head.
2	BRT Passenger Survey (Mile 12 to Ikorodu)	To collect data on a number of variables including time and income savings, impact of BRT on socio-economic activities, usage of BRT and for purposes, characteristics of sample, accessibility, affordability, availability of services on BRT corridor, challenges, constraints, lessons, etc.	Multi-stage proportionate random sampling i. Identify all BRT Bus Stops along the corridor ii. Conduct a face-to-face interview iii. Interview 10 persons at every bus stop: Five males, five females	Female representation was important to get a fair assessment and gender balance of views.
3	Motorists Survey	Examination of motorists' travel behaviour, cost of running their vehicles and perceptions.	The methodology involves a quota sampling plan as well as a targeted sampling. Respondents were drivers from settlements along the BRT corridor and the rehabilitated roads. Surveys were also conducted at civic and social functions, homes, religious functions and places of employment.	Akin Adesola road was not suitable for road side administration so most of the questionnaires were administered to motorists and in the offices.
4	Commuter Survey	Conducted along the corridor to capture travel and perceptions, transit points and how mode of travel. All essentials for travel costs, times etc.	Stratified Random Sampling i. Identifying major bus stops along the corridor ii. Interview commuters at each identified bus stop iii. Ensure that equal opportunity is given to males and females.	It was expedient that passengers who were on the queue and at bus stops were interviewed, taking advantage of the waiting time.

5	Vehicle Count Survey:	To capture the traffic volume by types of vehicle on hourly basis between 6 am and 6 pm.	The count was conducted in two shifts Morning/afternoon (6 am – 1.00 pm) and afternoon (1 pm – 6 pm) Break necessary to avoid loss of concentration by enumerators The methods of data capturing involved the under listed steps: i. Identification of the screen location ii. Identification of all vehicular types and allocation of each to an enumerator iii. Capture of vehicular traffic through by manual count by enumerators.	Ensure that all vehicle types were covered in the count (commercial Bus, other buses, car, Taxis, and Heavy Duty Vehicles HDVs)
6	Terminal Inventory Survey	An inventory survey was conducted at the Mile 12 BRT depot to audit the existing facilities against global facility standard.	An inventory sheet was used to collect data on infrastructure at the terminals. The following facilities were audited: Holding Capacity, Access road, Ease of Accessibility, Perimeter Fence, passenger Waiting Area, Conveniences, Flood Lights, Security post, Sick Bay, CCTV, Restaurants, Power plant/Transformers.	To use as means of verification of construction specifications in Component 2B.
7	Speed Survey	To record real the time taken, speed from one BRT Bus stop to another along the Mile 12-Ikorodu, CMS,TBS corridor.	Mystery Traveller boarded the BRT bus and used the Global Positioning Satellite (GPS) hand held equipment (GPS) and recorded speed and time and segments of each part of the journey recorded.	Accuracy of time and speed was important to the KPIs on time savings.
8	Pedestrian Survey	To obtain opinion/perspective perspectives of pedestrians with regards to their experiences and needs on three roads	Random Sampling	
9	Non Motorised Transport Survey	To obtain opinion/perspective on safety, improved earnings or ease of travelling on the roads	Random Sampling Bicycling and other forms of Non Motorised Transport are not used extensively as a means of transportation in Lagos State.	Not very successful because non motorised transport are not common on the corridors surveyed.
10	Social Impact survey on Gender and Vulnerable Groups	To ascertain desirable and undesirable impacts of the project on the vulnerable and the voiceless group	Targeted sampling Sample size of total 120 was targeted at the following: Women 40% Elderly (male and female) 10% Physically challenged 30% Children 20%	Vulnerability for the purpose of ICR included the elderly because transport difficulties are rife with this group.
11	Survey on counter factual road (Agege/ Oshodi)	To estimate what the outcome (Y) would have been for a program participant in the absence of the program (P)	Multi-stage proportionate random sampling	Measurements and interviews were conducted along the Agege Motor Road and the findings will be computed to enrich the M & E report in this regard
12	Ikeja Bus Park	Rapid Evaluation and economic Appraisal	Project is on-going and evaluation can only be possible through on the site survey and review of available documents on the proposed project.	There were no available studies on the project and economic evaluation was based on narratives and "as is" situation conducted by the Consultant based on "Best Judgement Assessment of the situation on site.

1.14.3 SURVEY SAMPLE & SIZE

The targeted survey population for all the respondents was 1720. An achievement of 97% response rate was attained as detailed out in Table 7:

TABLE 7: SURVEY POPULATION –PLANNED AND ACTUAL

No	Survey	Location	Planned Sample size	Actual Size	Response rate in %
1	Household survey	BRT Corridor Mile 12 to Ikorodu	200	200	100
Socioeconomic survey on Beneficiaries BRT Mile 12-Ikorodu					
2	Commuter	BRT Corridor Mile 12 to Ikorodu	100	102	102%
3	BRT passenger	BRT Corridor Mile 12 to Ikorodu	75	75	100%
4	Motorists	BRT Corridor Mile 12 to Ikorodu	100	90	90%
5	Two wheel operators	BRT Corridor Mile 12 to Ikorodu	75	72	96%
Socioeconomic survey on Beneficiaries Rehabilitated DRN Roads					
6	Commuter	Wempco Road	100	100	100%
7	Commuter/Office	Akin Adesola	125	125	100%
8	Motorists Survey	Wempco and Akin Adesola Roads	100	90	90%
9	Pedestrian Survey	Wempco and Akin Adesola Roads	125	120	96%
10	Non Motorised Transport Survey	Wempco and Akin Adesola Roads	100	70	70%
M & E Specialist Survey					
11	Social economic cross sectional beneficiary survey	BRT Corridor Mile 12-Ikorodu Wempco & Akin Adesola (M & E Specialist)	500	514	102.8%
Sociologist survey on Safeguards and Gender and Vulnerable Groups					
12	Social impacts survey	BRT Corridor Mile 12-Ikorodu (Sociologist)	120	120	100%
Total			1720	1678	97%
Other Surveys					
11	Traffic count	BRT Corridor Mile 12 to Ikorodu			
12	Speed	BRT Buses @BRT Corridor Mile 12 to Ikorodu			
13	BRT Depot Inventory	Mile 12			
14	Rapid Appraisal	Ikeja Ultra Modern Bus Park			

1.14.4 DURATION OF FIELD WORK

- The duration of all the field work was 10 days and commenced on the 27th March 2017.
- Interviews of key stakeholders such as LAMATA staff, BRT Bus Franchisee were done over a period of 6 weeks intermittently and as required
- The FGD with RAP stakeholders were conducted on within the period of one week and follow up discussions were held with them to confirm some information that were found opaque.
- In the main field work took a period of one month.

FIGURE 3: FIELD WORK IN PROGRESS

FIGURE 4: M & E SPECIALIST AT FIELD WORK

Descriptive and quantitative techniques were employed in the analysis of the study data. Descriptive analytical tools such as frequency tables and charts were used to describe the socio economic characteristics of beneficiaries. These were also employed to compare before and after benefits and levels of investment along the roads, compare road usage, transport costs and their imputed income benefits, before and after the project to gauge the effects of the project. The field investigations conducted will provide data to prepare economic cost/benefit analysis of selected roads, VOCs, ERR/NPV for the extended BRT roads and an economic evaluation of the BRT project.

2. SITUATIONAL APPRAISAL OF LAMATA

2.1 INSTITUTIONAL STATUS OF LAMATA

LAMATA is a corporate legal person having been established by law of the State House of Assembly on the 13th of January 2002 and being formally launched on December 2, 2003. It has an independent board compromising 13 persons and the make-up is representative of the Authority's stakeholders- transport operators, transport unions in Lagos State, the organized private sector, the general public, local government areas, and transport related LSG agencies. The Managing Director of LAMATA is the only full time member of the Board and he also heads LAMATA management team. The Chairman, Managing Director and members of the Board are appointed by the Governor.

The Authority is charged with the responsibility for "formulation, coordination and implementation of urban transport policies and programs in the Lagos metropolitan area, with the primary mandate to play a lead role in carrying out transport planning and assist in transport policy formulation and coordination of major operational and investment decisions and implementation" It is pertinent to state that LAMATA was to stand apart from the Ministry of Transport in the State such that it would not be encumbered by the bureaucracy of the typical government Ministry. It also required to be semi-autonomous such that its authority for policy formulation and regulation would not be curtailed by the Ministry. These factors made it imperative that LAMATA should be a creation of Statute. The WB as the lending agency also required this legal autonomy as a condition for lending to the LASG. A further enabling act was enacted by the State House of Assembly in 2007 re-establishing LAMATA and giving it additional powers to plan and regulate functions across the various modes of transport. The LAMATA law strengthened its autonomy with the powers to "facilitate the discharge of its statutory functions, including the power to levy and collect user charges in connection with the provision of its services and to collect any other tariffs, fees and road taxes as may be authorized by the Governor." LAMATA's semi-autonomous status means that it reports to the Governor directly. The Authority however relates with its stakeholders in the transport sector and must engage and collaborate with them. To ensure this collaboration, LAMATA governing body is a Board of Directors composition of which shall include a Chairman, the Managing Director of LAMATA and eleven other members on part time basis who shall include 2 transport operators, a representative each of the Ministries of Transport, Finance, Economic Planning and Budget, Lagos State Chamber of Commerce and the Transport Union in the State, one member representing all the LGAs and two members of the public.
LAMATA implemented the LUTP 1 between 2007-2010 and the project was adjudged satisfactory by the WB which monitored observance of the conditions and covenants of the credit especially as regards financial standards of disbursements and record keeping, procurement methods and monitoring and evaluation of project. Apart from the WB, LAMATA was itself self-monitoring and conducted baseline, midterm and end-stage appraisals of the project. The ICR for LUTP 1 was also used to appraise the entire project achievements and failures. The aggregate result of the appraisals was that LAMATA had performed very credibly in the implementation of the LUTP 1. Some of the affirmative and positive achievements of LAMATA are as follows:

- "LAMATA was able to provide an overall vision and strategic direction for addressing the long neglected transport needs of the Lagos Metropolis and to coordinate activities of the different executing agencies to provide a common and consistent basis for implementation.
- LAMATA started, for the first time in the Nigeria, the design and execution of maintenance works

with participation of private sector through awarding contracts to local consultants and contractors. As a result of introducing professional supervision, transparent application of procurement rules, high standards, and prompt payment to contractors, the cost of road works reduced.

- LAMATA was successful in:
    - preparing a strategic long-term plan for the transport sector in Lagos;
    - coordinating activities of the multiple agencies involved in the sector;
    - rationalizing motor vehicle tax administration, resulting in a substantial increase in revenues;
    - maintaining, upgrading, and rehabilitating 632 km of the declared road network;
    - implementing a pilot BRT "Lite" system from Mile 12 to the Church Missionary Society (CMS);
    - rehabilitation of four jetties;
    - creation of over 1.3 million person-days of employment; and
    - changing the attitude among users towards bus transport system."
    - Building an in-house collection of professionals capable of formulation, coordination and implementation of urban transport policies and implementation and monitoring of transport urban projects.

2.3 DEDICATED TRANSPORT FUND

The LAMATA Law of 2007 which re-established the provisions of the first Law of 2002 gave legitimacy to the creation of the Transport Fund. The Transport Fund was established in August 2005 pursuant to the first LAMATA enabling law, section 12 thereof "for the purposes of ensuring the Authority's sustainable performance of its functions." The fund is made up of "sums accruable to the Fund under section 5 of the Motor Vehicle Administration Law." The Transport Fund is managed by LAMATA and is a dedicated funding mechanism for activities to be undertaken by LAMATA under the LAMATA enabling Law.

Transport Fund revenue is derived from the following sources:

(a) Lagos State budget provision;
(b) license fees (hackney permit, road taxes, license plate registration, auto registration;
(c) concession fees;
(d) other road user charges (tolls).

The Transport Fund has been successful as a funding vehicle to cover LAMATA operational costs to the extent that this aspect funding has been taken off the IDA/AFD in the LUTP2. As can be seen from Component 1D LAMATA operating costs is solely financed by the LSG.

Inflows to the Transport Fund has been consistent over the years as can be seen from the table following. As at December 2010, there had been a total inflow of USD22 Million into the Fund and this has increased to US USD 45 Million from between May 2011 to December 2016, bringing the total inflows to USD 67 Million.

TABLE 8: TRANSPORT FUND CAPITAL INFLOWS 2011-2016

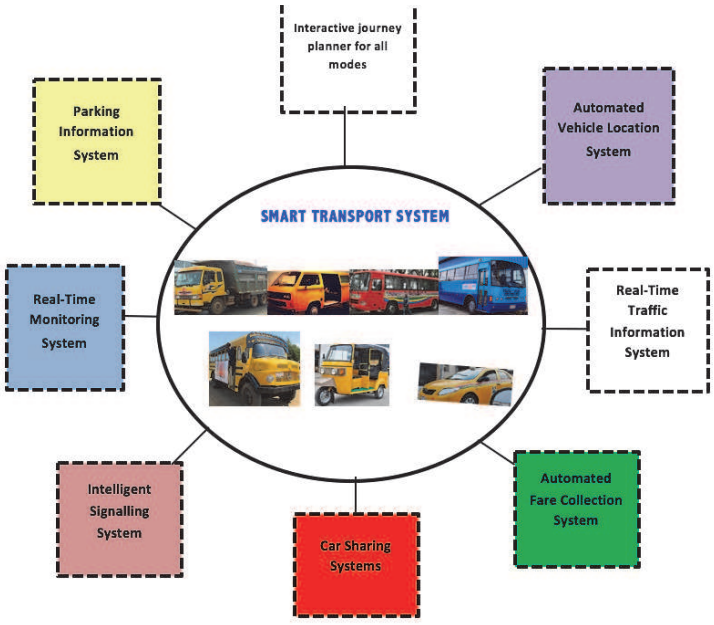
User Charges	2011	2012	2013	2014	2015	2016	Total
Counterpart Fund	6,129,032	6,129,032	8,974,359	7,971,273			29,203,696
Transport Fund (MVAA Transfers)	3,870,073	7,790,021	9,407,158	12,239,629	6,922,721	5,346,223	45,575,825
Other Sundry Income	66,647	1,123,464	1,209,521	878,870	734,354	275,569	4,288,425
Total	**10,065,752**	**15,042,517**	**19,591,038**	**21,089,772**	**7,657,075**	**5,621,792**	79,067,946

Apart from the Transport Fund, the LAMATA Law allows the Authority to find other funding vehicles for purposes of cost recovery since it is a fact that cost recovery on roads and transport infrastructure in Nigeria has been habitually low over the years. LAMATA undertook a study aimed at examining this purpose and parts of the other sources of funds are the Franchise and depot fees payable by Bus Franchisees yearly. Of recent LAMATA has been exploring concessioning advertisement to Agents at the bus terminals and bus stops. Income from advertisement on buses has been ceded to the Bus Franchisees.

2.4 LAMATA STRUCTURE AND SETTING

LAMATA retains the function-based organizational structure it had at inception comprising of Departments and Units. The departments which are called Directorates have changed somewhat from what they were during the LUTP 1 implementation, but the changes reflect the dynamism of LAMATA rather than a defect in original structure. A new Directorate for Rail Planning and Operations was introduced, signifying that rail transportation had come of age and had become an important component in LASG multi-modal transport mix. Although the LUTP 2 did not provide funding for rail transportation, as the LASG did not request for this, LAMATA is providing rail transport policy, planning and implementation supervision and rail infrastructure is on-going. Expenditure on rail is being funded by the LASG through public-private sector partnership arrangements. The Directorates in LAMATA are: Finance and Management Information System; Corporate and Investment Planning; Bus systems; Rail Planning and Operations; and Infrastructure. The Heads of the Directorates are designated Directors and they report directly to the Managing Director. The function-based Units are; Admin & HR; Traffic

FIGURE 5: LAMATA MD'S VISION OF SMART TRANSPORTATION SYSTEM FOR LAGOS STATE



Management & Safety, Procurement, External Relations, Internal Audit and Corporate and Legal Secretary. These units also report directly to the Managing Director. The activities of the units impact on the Directorates. For example, the Procurement Unit overseas all procurement of goods and services of all the Directorates and ensure that extant procurement regulations are complied with. An advantage of LAMATA's function-based structure is the coordination and control that this approach allows the leadership to have and the fact that managerial and technical talents of the functions are used more efficiently and effectively.

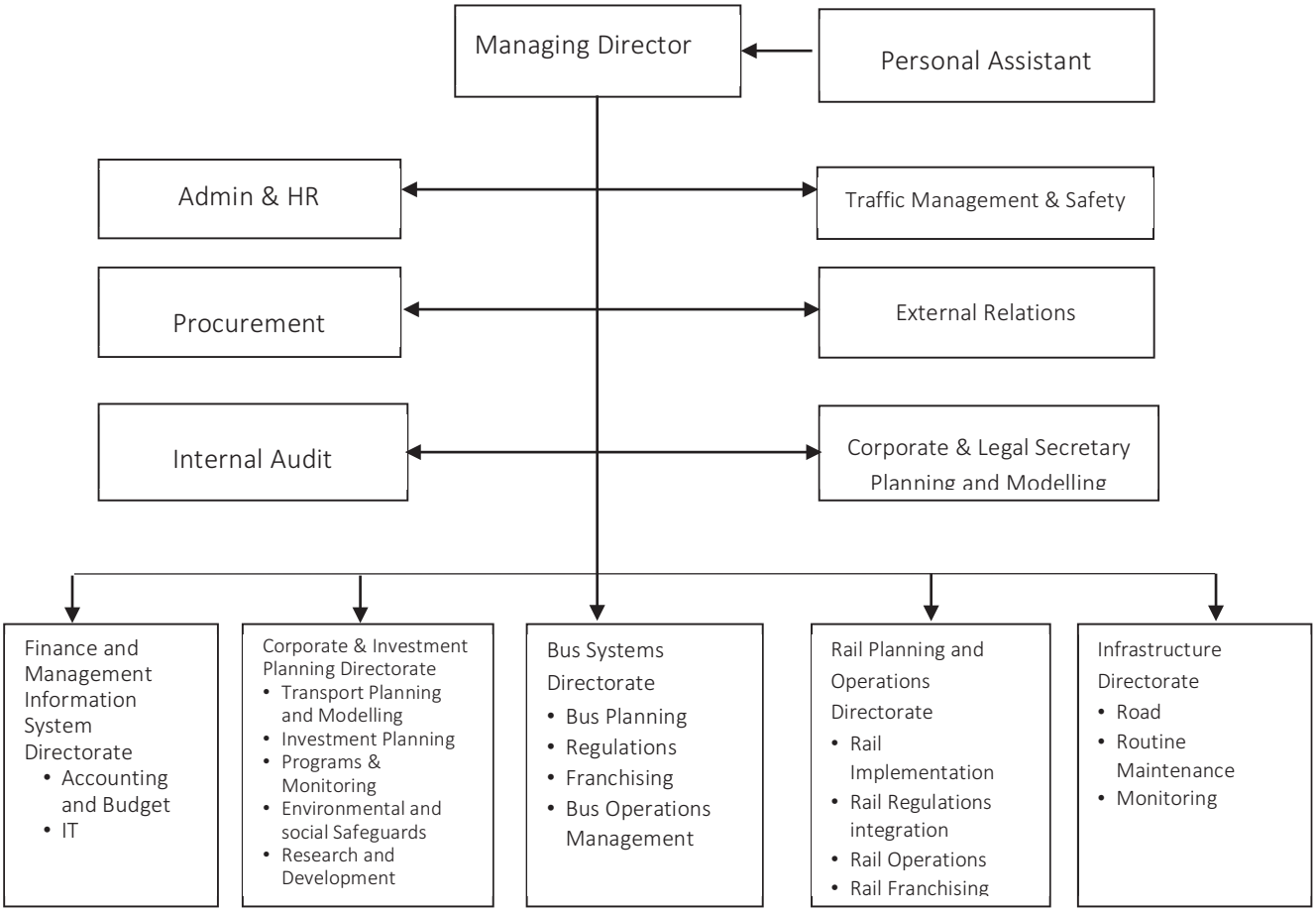
The Managing Director (MD) is a veteran engineer who once headed the Procurement Unit, rose through the ranks of the organisation to become MD, a fact which made succession in LAMATA'S operation seamless and has also strengthened even the more, the organisation's culture of continuous improvement. The MD has a compelling vision for LAMATA's future. The MD envisions a time that it would become the norm for majority of commuters in Lagos to use bus transportation in preference to personal vehicles. For this to occur, the MD plans that a network of serviceable feeder roads must connect to main road arteries and feeder buses must service those areas. When commuters need to walk only short distances of about 5 minute to a bus stop and immediately be connected to the bus network loop, then a new vista of pragmatism will be open which will see commuters voluntarily leave their vehicles at home because it would be the more sensible option of choice. When the mass transit system is developed to this extent, this he hoped will lead to a "clean city" free or controlled pollution through the use of less cars on the roads. The MD's vision also includes Lagos becoming a SMART city driven by information and technology such that mobile devices will become drivers of commuting as commuters will have easily accessible information to plan journeys for work and social engagements. In the SMART city, the MD looks forward that a cashless fare payment system would be the norm as mobile devices would become the payment method with real time information available on arrival and departure of buses, interconnections and bus global operations. (see Figure 5). Our BRT passenger profile survey showed that persons aged below 50 years constituted over 80% of the total passenger population. This age bracket is the most vibrant and technology savvy segment of the population. A cross tabulation analysis between respondents ages and educational level shows that about 75% of persons in this group are literate of which it is assumed that over 50% will own a smart phone, which can be used for surfing the web, making online transfer of funds, online payments, online registration transactions, among others. In 2016 December, Nigeria had attained a tele-density of 110.38 per cent, rated by the ITU as one of the highest in the World. From the foregoing, it is therefore possible for the BRT ridership to achieve the MD's vision of operating as a SMART city in the not too distant future.

2.4.1 ADMIN AND HUMAN RESOURCE

The Administration and Human Resource Unit is a fundamental unit in LAMATA because it oversees all staff issues including recruitment, discipline and termination of staff as well as activities in between relating to leave period, promotions, training and capacity building and staff emoluments and others. The unit impacts on the job satisfaction of staff, welfare and overall conduciveness of the workplace for staff. The Head of the unit was unabashed in his overall assessment of the unit and LAMATA's work environment as near perfect and though his view may be deemed subjective many other staff members across units and directorates corroborated this general assessment. Some of the unique work ethics and values asserted are as follows:

- LAMATA operations and environment is atypical of the bureaucracy that is the norm in the public sector. Clearly there are rules and regulations to be observed in LAMATA, but staff are not incapacitated by them as everyone is employed based on merit and professionalism and staff are right pegs in right holes thus the need for marked supervision is absent. In summary LAMATA embodies professional and efficient resource management.

FIGURE 6: LAMATA ORGANOGRAM



- There has been stability in LAMATA leadership which has helped in ensuring consistence in policy and focused implementation of projects. Since 2003 to 2016 LAMAT had one Managing Director and it was only in 2016 that the incumbent was named MD and the fact that the incumbent also worked with the former MD, suggests that the vision for LAMATA is shared by him.
- Staff salary and emoluments are not based on civil service structure and thus are competitive and commensurate and are positively benchmarked against top private sector organisations thus ensuring staff retention. In fact, many staff are recruited directly from the diaspora and many more from the private sector.
- Staff across board have spoken about job satisfaction in LAMATA from junior staff to the most senior. Job satisfaction comes from the dynamic work environment which sees various projects come on line from planning to implementation and the projects are equally dynamic being inter-modal. Every day at work is new. Salary is said to be fair and no one feels cheated when salary is compared to multinationals and even the banking industry and stress level is not in the negative. The camaraderie between staff is high and there is a feeling of being part of a LAMATA family.

- In 2016, when there was a lacuna in the position of the Managing Director because the substantive MD had been made a Commissioner in the LSG and a new MD had not been appointed, the activities of the LAMATA slowed down somewhat, the Senior Management staff took a decision to reduce the salaries of the top management staff by 18% and all said senior staff concurred. The decision was taken so as not to have to lay off staff. LAMATA decided to self regulate in this manner to keep the Authority's operational costs within acceptable limit.
- LAMATA has entrenched a culture of capacity development both institutionally and individually. The Authority has become an "authority" in transportation management in Nigeria and this has translated to it being given responsibility to assist the Kano State Government in developing a policy and implementation framework for Kano State transportation master plan. Training is a culture and training is on both hard and soft skills.
- The HR Department requires staff from all departments to complete personal training needs form and the department endeavours to meet the desired needs of the employee. Some specialized departments including Procurement and Internal Audit specifically desire hard training applicable to their technical functions and these so far had not been achieved.
- The Department ensures that there is a quarterly workshop for all staff of LAMATA. These quarterly trainings are conducted outside the office and the purpose is for team bonding and eliminating barriers across board and a forum for Management to reiterate or refresh the LAMATA objective and brand, and align staff with the strategic thrust of the Authority and recheck whether all staff are working towards achieving LAMATA goals.
- A fallout from the Workshops is the Monthly communications meeting that has been agreed upon wherein Management communicates with all staff contemporary issues concerning the Authority so that all are well informed and carried along in a participatory manner. The objective of this is that all staff from low to high remain apprised of LAMATA projects and activities at all times such that they can direct visitors or enquirers to the appropriate person within the organisation that can attend properly to the enquiry.
- The LAMATA leadership is one of team action. The Managing Director believes everyone contributes to the success and/or failure of the organisation. Having ascended to the current position from within, he is able to feel the pulse of the staff easily and and can sustain the culture of continuous development that LAMATA enjoys.
- The directorates and units are set up as sub-teams with LAMATA as a whole being a team. There are between 3 to 6 persons in each of the sub-teams and although there is stratification in terms of rank, the sub-teams are cohesive and effective. The general consensus about the MD is that his leadership style is devoid of autocracy but rather shared leadership with the heads of directorates and units. The MD is also adjudged as visionary, energetic and a pragmatic person who thinks out of the box and encourages others to do the same. An example of this characteristic was given that

BOX 1: BEST PRACTICES OF THE ADMIN & HR UNIT

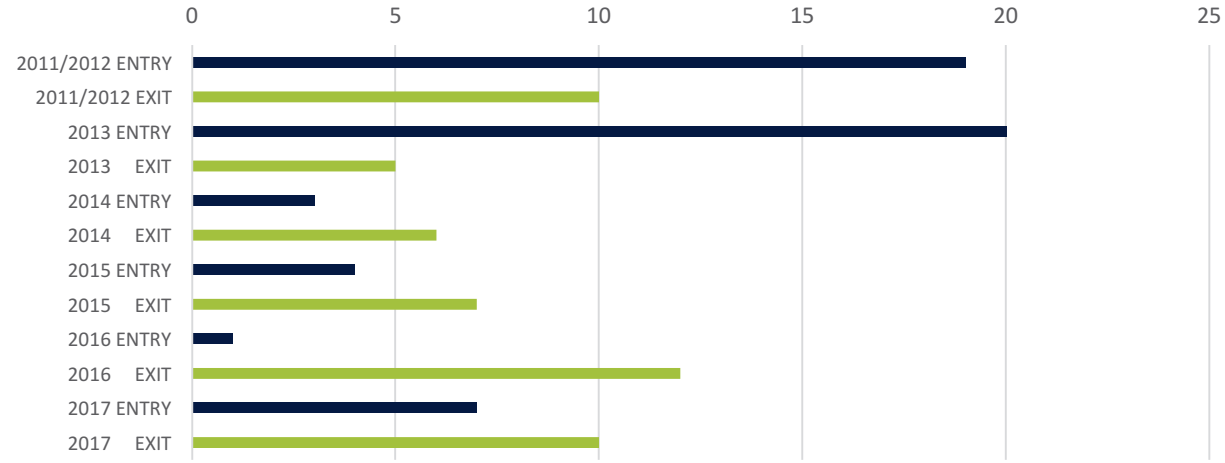
Best Practices of Human Resource Unit

- Competitive pay structure comparing favourably with private sector high paying organisations make recruitment and retention of high calibre staff possible.
- Structured staff capacity development policy and plan resulting into both hard and soft skills competence for staff.
- Collegiate and team feeling high among staff and promotes workplace calm and contentedness.
- Job satisfaction high among staff
- High paced level of activities mean that staff are not stagnated in tedium.
- Career growth path growth not overtly politicized given staff the hope of climbing the succession ladder.

in order to generate revenue and not just be an Agency that relies on funding from Government sources only, the MD came up with the idea of LAMATA earning revenues from advertisements in Bus stops built by LAMATA along the BRT Corridor. LAMATA is in the process of procuring contract with qualifying advert agencies to achieve this revenue drive. It was also the idea of the MD that staff Workshops be held at least every quarter.

- Staff discipline has been non existent because there have not been need for wielding any big stick to punish errant behaviour. The sterling professionalism of staff has meant that self-discipline is high. There is open communication between staff and management engendered by the team work leadership style and the regular staff workshops, which helps group communication and information dissemination.
- Staff turnover is low in LAMATA. Those who leave do so mainly to attain further education. Staff that are laid off or dismissed usually are from lower cadre such as drivers. Details of staff movement in and out from 2011 to 2017 is contained in the Chart below. Years 2011/12 and 2013 were the years where the highest numbers of new staff were employed. The next year of substantial recruitment is the current year 2017. Year 2016 was the year with the highest number of people leaving LAMATA and this was the year where the top echelon staff retired when the new administration resumed. The year also saw only one new staff appointment which was the employment of the Head of HR.
- There is adequate staffing. However, there are certain activities that come up from time to time which would require recruitment of consultant or contract staff. In the last four years only four consultants have been made permanent staff. These are specialized areas.
- LAMATA staff profile for 2017 shows a staff strength of 103 as can be seen in Chart 2 below, made up of 14 senior level staff, 19 middle cadre and 47 junior level staff. There are also 23 ancillary staff.
- Staff Appraisal (Performance Objective Setting) is undertaken once a year and the HOD and HR are involved in this process for all staff. This determines salary increase and performance emoluments.

CHART 1: STAFF MOVEMENT FROM 2011-2017

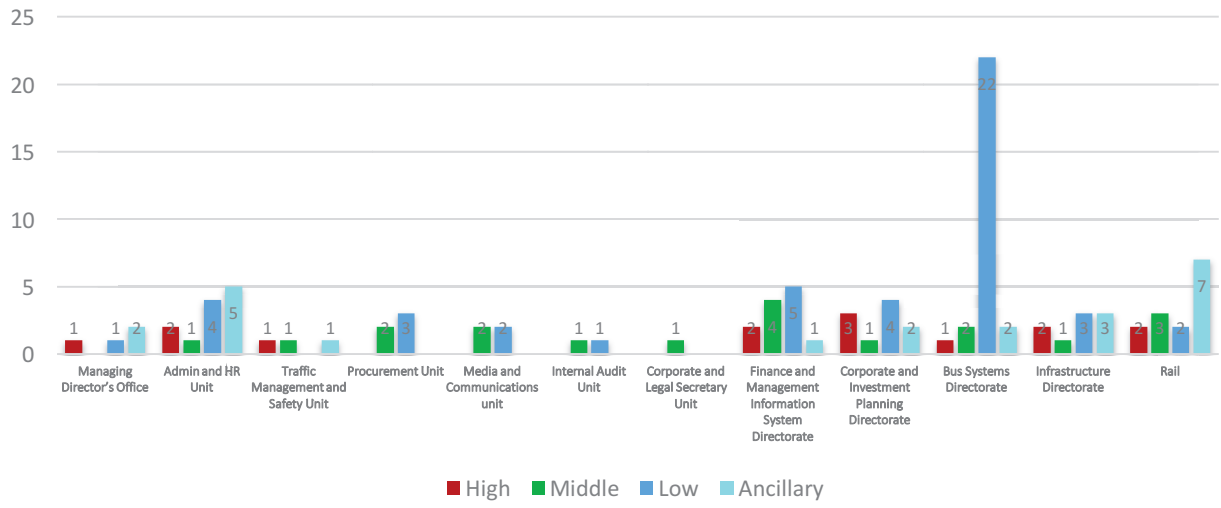


- LAMATA places emphasis on training to build capacity, competence and capability on the job. Departmental heads could request specific training for staff e.g presentation skills, technical report writing etc. HR also carries out training needs assessment for staff to assess skill gaps. Through that, a yearly training plan is developed. World Bank approves this. Sometimes due to budget

constraints training requirements are prioritised. Specialised training that cannot be sourced locally is be sourced outside the country. For example, GIS training; Rail Training; Planning & modelling.

- HR tries to ensure that at least every one goes on training once a year. It could be as part of a group or individually. Collaborative training is also carried out with other relevant MDAs such as Legal and transport to achieve LAMATA's objectives. The training plans under the LUTP 2 are discussed under Project Component 1 findings.

CHART 2: LAMATA STAFF PROFILE 2017



Some challenges and constraints in the Admin & HR Unit include the following:

- Funding constraints sometimes mean some training cannot be provided
- Timing of some training – staff may not be able to attend due to work schedule/priority
- Sometimes recruitments are difficult to source locally. This creates delay in appointments

In general, there are constraints in recruiting the pool of professional staff that are needed in some departments in LAMATA. Hitherto LAMATA had the resources to headhunt Nigerians abroad who were already working in the sectors for which the skills gap was to be filled, but current economic challenges do not permit that at present. The challenges in staffing will impact more on the LASG rather than on the LUTP2 because the latter is at the end and closing, but with the scope of works that the LASG is pursuing in the transportation sector LASG will need more expertise in the delivery and sustainability of the projects.

Some best practices under Admin & HR is that procurement of Training is carried out through a transparent process. The Unit goes through procurement process & World Bank guidelines to ensure value for cost and to ensure competency of training providers in the delivery of the service.

2.4.2 CORPORATE AND LEGAL SECRETARY

The Corporate and Legal Secretary's (CLC) unit head's scope of work covers preparation of contracts and other agreements and weaving into these, details of work, deliverables and timelines for the deliverables. The main objective of the unit is to protect LAMATA's interests and therefore the interests of the LASG in

contracts and to ensure observance of covenants and terms of the contract. Contracts in which LAMATA is a party and the LASG is not a direct party are within the purview of the Corporate and Legal Secretary Unit, but contracts that involve the LASG as a party are sent to the State Ministry of Justice for review and execution. Staffing comprises two persons, the Head of Legal Unit/Secretary and and an Assistant., both are in senior management cadre. Presently the Head of CLC has been re-deployed to the Ministry of Justice leaving just one person in the department. There is thus a staff deficit of one. The deployment of the staff of LAMATA to the main stream of the Ministry hardly ever happens.

Some of the activities of the CLC include the following:

- Attending negotiation meetings and perusal of agreements to ensure alignment with all issues raised at the said contract negotiation meetings.
- Ensuring contract terms are enforced and delivery timelines are met.

Ensuring dispute resolution procedure are clearly stated in the contract and explained to the contractor

- during negotiation meetings. LAMATA favours in-house meetings to discuss issues as they arise so that dispute escalation is avoided and if this does not abate the dispute then arbitration is considered the next line of action. If there is a dispute arising among two or three LASG MDAs, then Mediation is an option that will be employed but with external parties, arbitration would be the way to go.

It is to be commended that LAMATA has never been involved in any dispute that has necessitated arbitration. All thorny issues were resolved amicably in-house. Infact, the few thorny issues were between joint contractors to LAMATA where one's delay in delivering a particular part of the contract was occasioning delay to the other contractor and they were on the path of a fallout with the CLC calling parties and resolving issues between them. There have also never been internal disputes among staff that has escalated to the courts or to arbitration.

Over the years the CLC has cultivated some credible practices that have stood the organisation in good stead and helped to forestall litigation. These include:

- Good communication globally with all stakeholders.
- Connectedness with contractors through the Project Manager from the responsible unit
- Ensuring the LAMATA keeps to the letter and intent of all agreements it enters into.
- Professionalism of the staff in the Unit and a leadership style of team and shared leadership among the unit.
- Pro-acting in challenging situations such as in the case of the first franchisee on the first BRT corridor-the First BRT/NURTW. The Franchisee were often in breach of the contract terms and the CLC ensured that letters were written always to highlight the infraction in line with the Franchise contract such that at the time the contract was cancelled by LAMATA the party was not aggrieved and there arose no dispute.

For the future the CLC looks forward to LAMATA growing to higher status as to be easily benchmarked with the Transport for London and other international transport management authorities. The CLC would also want the Unit provided with resources correlated to the unit such as the complete Laws of Lagos State, 2015 and Law Reports as this would enhance productivity in the unit. LAMATA should also be a Transport Knowledge Hub for Nigeria, conducting workshops and seminars on transportation planning. LAMATA should also develop a library of resources.

BOX 2: KEY TASKS OF THE LEGAL UNIT

- To prepare the agenda and minutes of Board meetings for the Managing Directors to vet before sending them to the Chairman for correction and publication to the other Board Members.
- To prepare an action plan for matters requiring action after the Board meeting.
- To keep the records of the organization.
- To keep the corporate seal.
- To monitor all relevant regulations (tax, audit, legal) and performing research to determine implications on LAMATA'S operation.
- To review all company's policies, procedural guidelines etc and ensuring their consistency with legal standards.
- To provide legal presentation and advice to the company if / when necessary.
- To review all contractual obligations and pricing agreement with third parties and recommending appropriate actions.
- To undertake any activities assigned by the Managing Director / Chief Executive Officer of LAMATA.

2.4.3 PROCUREMENT UNIT

The Procurement Unit oversees the acquisition of goods, works and services for LAMATA under the LUTP 2 and other projects of LAMATA for the LASG. This role is carried out in strict adherence to the Procurement policies and procedures under the WB's guidelines and LAMATA's procurement manual

The activities under Procurement include:

- Lead the development of a Project Procurement Plan and generate regular updates for the guidance of all secretariat senior staff (update monthly the procurement plan).
- Establish a procurement schedule (time table - a bar chart if appropriate) consistent with the Project Implementation Plan, that indicates the timing of any advance procurement action or contracting and displays conditionality and other critical milestones in procurement, as well as estimated annual contractual payments;
- Undertaking all LUTP 2 procurement activities covering the pre-award phase, award, and the post award, such as:
    - Prepare procurement related documentation (e.g. prequalification documents, bidding documents, specifications, bid evaluation reports, letters of invitation, Request for Proposals (RFPs), draft contracts, etc).
    - review and verify technical specifications (for Goods and Works) and Terms of References for Consultant services;
    - conduct relevant market researches for procurement bid lists
    - prepare the bidding documents (and Request for Proposals) and launch Bids;
    - conduct (participate in) evaluation and write evaluation reports;
    - manage the award;
    - assume the responsibilities for contract management and contract administration, and conduct/participate in acceptance committees;

- advise the managing director on all issues relating to stage payment of all on-going projects.
- Prepare contract status report

- Collect and maintain a database on current prices of commonly required items.
- Collect and maintain a database of suppliers of frequently required items of works, goods and services
- Manage delivery of procurement training under the LUTP
- Develop tools for capturing procurement data and identify progress towards the achievement of procurement schedules.
- Participate in project technical committees or component team meetings in order to ensure timely implementation with a focus on procurement related activities;
- Coordinate with the Financial Officer for regular preparation of Project Management Reports, as a part of the World Bank financial reporting requirements;
- Resolve any procurement problems related to LUTP activities.
- Prepare monthly, Quarterly and Annual reports of procurement actives on Bank funded projects.
- Coordinate with the involved staff in the operations (cross functional) targeting the increase of operations efficiency:
- Report and interface with the WB's Officer to obtain necessary "no objection" assurances to procurements.
- Undertake such other duties as assigned by the MD LAMATA.

Staffing presently is 5 comprising 2 senior cadre, 2 middle cadre and one Junior level. The staffing is optimum presently and the unit has not experience a high turnover of staff because staff job satisfaction is apparent and the unit is run with a team spirit. Staff have both intrinsic and extrinsic motivation and perform satisfactorily. As proof of capacity and competence in Procurement, the unit has had no case of mis-procurement throughout the implementation of the LUTP 2.

The Procurement unit has however encountered a few challenges including:

- Evaluation of technical bids sometimes suffer delay because the process involves drawing evaluation committee members from different Departments and there are constraints of everybody being available at about the same time to conduct the evaluation of proposals in due time. Despite this constraints, the Procurement is usually achieved within time.
- Approval process for assignment, award, payment now takes longer as a result of involvement of the Governor's office in the Lagos State Secretariat, Alausa as well as the new layer of oversight that has recently (during the current administration of the incumbent Governor being instituted in the Project Financial Management Unit (PFMU) of the State Ministry of Finance where an approval or a "sign off" is required before LAMATA can disburse funds for executed contracts. This is atypical of the process under LUTP 1 when after a "no objection" from the WB, LAMATA could complete the contract and disburse from the project account.
- Because of the large volume of documentation involved in procurement data storage had to be strengthened by purchase of Icloud storage and this has provided security of data as there is reduced risk of loss of data or damage to files, a situation that was hitherto a source of anxiety in the Unit.

- There is inadequate specialized training in Procurement for the staff of the unit. The Head of the unit has only attended a procurement clinic at the WB in Abuja. He recommends that all staff of the unit be given specialized procurement training

The Procurement unit believes that over the years, quality of response to procurement advertisements, RFPs and submission of Technical Bids thereafter have improved substantially. There have been:

- Good and adequate response to EOIs in terms of numbers, showing availability of qualified experts in the country.
- Sometimes almost all Consultants responding qualify, scoring highest available marks and shortlisting has had to be done by adopting further criteria.
- LAMATA prides itself in having contributed to the development of local consultants nationally in regard to response to procurement in correct terms and also in the appointment of local contractors.
- LAMATA has also been able to develop the capacity of local construction companies because they are used in construction of the Bus shelters, project supervision and have been active participants in various capacities under the LUTP 2.

2.4.4 INTERNAL AUDIT

The Internal Audit Unit evaluates the reliability of the accounting systems, data, and financial reports and carries out periodic reviews of project activities, records, accounts and systems; the unit ensures effectiveness of financial and accounting policies and procedures, as well as compliance with internal control mechanisms; review of SOEs; physically verifying purchases and assets; and carries out other functions as may be required. Yearly audit plans are prepared and followed. The Internal Audit unit carries out audit of the core departments of LAMATA including the Finance and MIS and Procurement and also some of the cross functioning units such as the Admin and HR and the External Relations. The Unit also at a time audited the Infrastructure Directorate and was monitoring construction works and expenditure pattern of projects to ensure that work done was commensurate with sums of money disbursed for the the works and the levels of work expected were kept sacrosanct. Infrastructure audit has however been put on hold because the unit which has no engineer was believed not to be able to audit engineering works. The unit looks into internal financial control measures such as verification of vouchers, making returns, invoicing and receipts and ensures that they are fit for the purpose for which the expenditure is made and comply with accounting requirements. Indicators for internal auditing of the Admin and HR Department would for example include indices such as punctuality of staff, recruitment processes, leave process, absenteeism, et.

There are 2 staff members in the Unit. This number is down by one because a middle level staff was seconded to the Finance and MIS directorate and has not been returned. The unit is of the opinion that they are presently understaffed and that the ideal staffing strength should be 3.

There has been cooperation between all other departments and units of LAMATA with the Internal Audit unit and the two members interviewed in the unit expressed that that they are enjoying job satisfaction and that LAMATA was an ideal place to work in.

While the unit does not express that there are major challenges or constraints, they require specialized training in Auditing and Accounting to augment the management and leadership trainings they have had. The unit also recommends that a third staff be deployed to the Unit even if such was an NYSC staff.

BOX 3: KEY FUNCTIONS OF THE INTERNAL AUDIT UNIT

- Review and appraise the soundness, adequacy and application of accounting, financial and other operating controls and promoting effective controls at reasonable cost
- Ascertain the extent of compliance and determine adherence with established institutional policies, plans, and procedures
- Develop and implement auditing procedures and techniques
- Perform audits on a routine basis of the project activities and follow- up on significant findings from previous audits
- Upon request, perform special audits as requested from project Officials
- Coordinate with and assist all external auditors in conducting their audits
- Assist in the preparation of written responses to post audit unit and other external auditors outlining steps taken in implementing audit recommendations.
- Maintain the official file of all external audit reports
- Investigate reported occurrences of fraud, embezzlement, theft, waste, and recommend controls to prevent or detect such occurrences.
- Prepare written audit reports, when appropriate, on the results of all audit engagements including any recommendations for improvement.

2.4.5 EXTERNAL RELATIONS UNIT

The External Relations Unit is also known as the Media and Communications Unit and the main function is to manage the Authority's external relations by engaging with stakeholders constantly so that the objectives of projects undertaken by LAMATA are clearly communicated to all stakeholders. In particular, for the LUTP 2, the External relations provides linkages between the public and LAMATA and ensures that the LUTP 2 project implementation embraced stakeholder sensitization and participation through public information and consultation. The safeguard measures to protect the rights of project affected persons that are included in the project are communicated and clearly explained to all stakeholders. The unit also has the responsibility to conceptualize and implement policies, programmes, events and public relations interventions in all project areas, by involving and ensuring the participation of stakeholders such ministries/Parastatals, the World Bank, Donor/Bilateral Agencies/International Community, Civil Society organizations, NGOs, organized Public Transportation Associations, the Media, the Private sector, other institutions and the general public. The External Relations Unit collaborated extensively with the Safeguards' unit in the implementation of the Resettlement Action Plan (RAP) for the Project Affected Persons (PAP) along the Mile 12-Ikorodu corridor. Prior to field studies, adequate consultations were made with all stake-holders along the corridor as well as government and traditional institutions. The stake-holders include; Agboyi-Ketu Local Council Development Area, Ikorodu West Local Council Development Area, National Union of Road Transport Workers-Ikorodu Garage, Management of Government Senior College, Owutu, Ikorodu, Omolere Market Association, Ikorodu. The entire corridor was segmented into 8 sections namely, Ikorodu, Ikorodu market, Agric, Ogolonto, Ajegunle, Owode, Owode market and Mile-12.

There are 4 staff members in the unit, two senior staff members and 2 junior staff. The Unit Head is of the opinion that they are adequately staffed but would rather have 2 seniors, 1 middle level and 1 junior staff.

The unit would also prefer to recruit an IT specialist in-house to manage the LAMATA website and all social media platforms so as to ensure real-time engagement with the public. Staff training is said to be adequate and related to both professional and self development.

BOX 4: EXTERNAL RELATIONS UNIT ESSENTIAL TASKS

- Develop and manage a long range and effective communications strategy for the project.
- Gather, evaluate and analyze intelligence and media information on all aspects of the project activities.
- Prepare an Annual Communication Plan in accordance with the agency's Budget indicating the activities planned for the year, the implementation Timeframe estimated budget and expected outcome.
- Conceptualize, design and coordinate the production of information materials including press releases, feature articles, fact sheets, brochures, supplements, radio and television materials to generate and sustain public support and interest in LAMATA's programmes.
- Plan, coordinate and manage public affairs activities and media relations Events, including media campaigns, press conferences and facility project in LAMATA and promote its internal and external image in support of achieving its goals.
- Develop and maintain close contacts with media practitioners at all levels to ensure regular, balanced reporting on the organization's activities.
- Establish the public impact/perception of LAMATA.
- Support the building of alliances/partnerships with targeted publics/stakeholders.
- Develop and manage information on LAMATA's internet website.
- Supervise the design, development and pre-testing and evaluation of relevant communication materials to targeted publics.
- Support the development and implementation of sensitization and mobilization programmes targeting specific stakeholders to secure their collaboration in achieving LAMATA's goals.
- Facilitate the development of close collaboration with Government and its agencies, Civil Society Organizations, NGOs, and organized Public Transportation.
- Publish the LAMATA Newsletter twice annually; to keep employees and stakeholders informed of the organization's PR activities.
- Organize and coordinate social events such as MD's Annual Dinner and Guest Night.
- Coordinate and administer Corporate and Year-end gifts

The challenges and constraints experienced by the External Relations Unit relate to funding. The Unit believes that consultation is imperative during project appraisal and prior to budget preparation for LAMATA institutional development and operating costs. The budget for the Unit in the LUTP2 in retrospect appears to have been inadequate because of the lack of consultation. The paucity of funds meant that the unit could not publish many informative documents as it would have deemed necessary such as leaflets, newsletters, etc. The unit was however successful in publishing a book-10-year compendium on the achievements of LAMATA within the period.

2.4.6 TRANSPORT SAFETY, SECURITY AND ENFORCEMENT UNIT

The unit is responsible for ensuring that safety standards are adhered to in the development of all transport infrastructure that LAMATA undertakes through its contractors. The unit is concerned about preserving lives and property on the highway. Whereas the safeguards unit ensures that the project does not leave adverse effects on the beneficiaries and on the environment, and that project affected persons are identified and the adverse effects are mitigated, the Transport Safety, Security unit looks at the hardware aspect and ensures that they are fit for purpose. The unit also has the responsibility to appraise the infrastructure for risks and liabilities in order to protect LAMATA and the LASG from possible litigation from road users who are able to trace and link injuries sustained or accidents to defect in infrastructure on the road.

The Unit's core responsibilities and activities include:

- "Manage Road Safety components during Concept and Detailed Design, Implementation and Post-Implementation Infrastructure development.
- Monitor, Evaluate, Supervise and Report Road Safety issues for Bus Operations on all the bus corridors.
- Manage LAMATA Rail Safety Construction (Interface with Road users and 3rd Party stakeholders)
- Manage Safety and Security Operations for Rail Passengers.
- Manage Safety consideration for Cable Car development and operations.
- Manage Safety considerations for Non-Motorised Transport Infrastructure.
- Promote Safety for Non-Motorised users. (Cyclists and Pedestrians)
- Enforce Health and Safety construction works for all LAMATA infrastructure.
- Monitor, Evaluate and carry out process of Enforcing BRT Lane/Bus corridor restrictions.
- Carry out Road Safety Audit on existing and potential Bus and Rail corridors.
- Promote Road Safety Education within LAMATA and other stakeholders.
- Carry out Accident/Collision investigation on Bus and Rail corridors.
- Ensure all approved Safety Guidelines are followed by Bus and Rail operations.
- Manage security provision of road infrastructure furniture.
- Promote Information Technology System (ITS) for effective enforcement on the bus corridors and for traffic flow improvement.
- Pro-actively assist other LAMATA departments to input safety considerations for their projects.
- Develop and periodically update Safety manuals for Public Transport infrastructure development and for operations.

2.4.7 FINANCE AND MANAGEMENT INFORMATION SYSTEM (MIS) DIRECTORATE

The Directorate of Finance and MIS has two units-the Accounting and Budget unit and the Information Technology (IT) unit.

The Directorate's financing portfolio relates to the finance and accounting functions of the Agency. The Directorate is responsible for formulating and implementing the accounting and financial policies to meet the accounting and auditing standards and guidelines of the international lending institutions. Mrs. Olurinu Jose, the Director, is satisfied with the standards maintained by her Directorate. Some of the key tasks of the department are as follows:

- Ensure compliance with all aspects of the financial management requirements of the agency (budgeting, accounting, costing and internal control) as documented in the manuals of operations and credit document
- Coordinate of the process of preparing annual budget, in association with the corporate and investment planning department, ensuring its effective implementation and monitoring.
- Preparing and supervising of activity plans, maintaining the project and special accounts, reconciliation statement and preparing quarterly SOE withdrawal schedule, preparing the quarterly financial monitoring reports and the annual financial statements.

- Ensure that the project financial management arrangements are acceptable to the state government and the IDA whilst ensuring that relevant reports and states are forwarded to the state ministry of finance and IDA.
- Evolve a costing system that ensures that the overhead cost of the Organisation is appropriately attributed between the various services of the Organisation in a manner consistent with the achievement of corporate goals and objectives.
- Ensure that necessary approvals for procurements are obtained from the Governor and that funds release follow the new accounting regulation of oversight by the Project Finance Management Unit (PFMU).

The IT unit function relates to Management Information System and the general objective is to efficiently manage the Information Technology for LAMATA benchmarked to International standards and ensure the data processing produces timely and effective management information. The essential tasks include the following:

- IT policy formulation and policy implementation for the agency's information processing requirements, and provision of periodic reports.
- Ensure quality of service is adhered to at the execution of all IT projects and contracts.
- Ensure application integration, data modelling, system developmental cycles, change control management, documentation management and requirements gathering procedures are effective and adhered to.
- Ensure staff and operational compliance of all LAMATA IT policy, standards, etc. are effectively applied and enforced.
- Contribute to the design of reporting, monitoring and evaluation of programmes for LAMATA's performance in relation to IT development parameters
- Responsible for the administration and maintenance of the SQL server, the Sun 5 financial accounting software and development of the organization's Exchange/Email system and SQL Database systems.
- Ensure the companies anti-virus and anti-Spam systems are implemented and managed effectively through a centralized administrative server
- Responsible for the implementation & administration of the Firewall and Security for the LAMATA data and LAN and perform and execute the LAMATA data backup procedures and ensure data integrity is maintained at all times.
- Development of the LAMATA disaster recovery strategy and implementation.
- Responsible for configuration and administration of all network hardware including: Cisco Router, Pix Firewall & HP Procure switches and hubs.
- Development of the MIS for the companies Intranet web pages.
- Deployment of workgroup & workflow solution for projects execution
- Supervise IT related contract implementation for all external contractors

There are a few challenges to efficiency in the new payment system that emerged with the change of administration in May 2015. Training scheduling and approval process is now said to be long so planning has to take about 6 months ahead resulting in some training especially the foreign ones being missed. Hitherto all approvals were done in-house but with the need for external approvals, the process is fraught with delays. The present Governor, being an accountant believes that there are some loopholes in the

former system that needed to be plugged in order to ensure transparency and prudence in the accounting system, and has put in place some accounting requirements that have now resulted in some bottlenecks.

In performing its functions, the Director and her team have had to become more creative and proactive in order to be able to still deliver efficient and quality services despite constraints as a result of changes in the environment under which the Directorate now operates. The field survey at ICR shows that the general opinion is that considerable delays to payments to contractors and consultants had been experienced of late since the change in Government in Lagos State. The introduction of a new layer of accounting supervision oversight by which all procurements and payments in respect of projects that are funded by development partners must be approved by the Governor causes considerable delays to effect disbursements to projects. Also, payment vouchers must also be submitted to the PFMU which has been given a supervisory function requiring that payment orders must be signed by the PFMU before LAMATA can pay make payments. This process though not without merit is considered cumbersome and occasions delay in payments to contractors and consultants. Since the introduction of the new system of payment, there have been many complaints on the slow disbursement to projects. The general opinion is that the function of the PFMU can be performed internally rather than externally or that the capacity of the PFMU be improved to make the unit more private sector oriented in speed of delivering on its duties, because presently LAMATA which operates a private sector model appreciates that timeliness is the very essence of productivity.

On the issue of having the Governor to approve payments for procurements, the Directorate devised a creative method of pooling together procurement items and asking for a global or omnibus approval from the Governor on all the items rather than sending a request for approval for each item. This approach has helped in speeding up the process of approval. Even at that, it must be said that the requirement for Governor's approval is another layer over and above the WB's "no objection" requirement which in itself is a monitoring tool.

BOX 5: BEST PRACTICES OF THE FINANCE DIRECTORATE

- Directorate showed pragmatism and creativity in management of income and expenditure
- Devising new revenue streams
- Generating income from Franchise Fees
- Deployment of IT across all departments to drive efficiency and productivity.
- Excellent change management especially in adjusting to new financial oversight of the PFMU and new approval requirement for procurements by Governor.
- Seeking and obtaining a global rather than individual approvals for expenditures under the procurement plan
- Developed excellent working relationship management with respect to PFMU oversight functions.

The Finance Directorate reviews the overhead costs of the Agency to keep expenditure on salary and on all running costs for LAMATA within the Agency's means which are derived from the income streams from the Transport Fund, Franchise fees, income from the Terminals facility Management contracts, and fees from advertisements at LAMATA bus stops. The terminal at the Tafawa Balewa Square is under a Public Private arrangement and under the Lagos State Ministry of Transport. As a deliberate cost savings device, the Agency's top management agreed to reduced wages because the workload had dipped and there was a lull in activities since the new administration had not quite settled down to appreciate the place of LAMATA in his vision for the LASG. The decision to cut down on salary by 16 per cent showed pragmatism as well as commitment to the Agency and the work it does as well as a willingness to self-regulate rather than invite external and perhaps painful regulation to intervene in the system. For example, external regulation may have meant staff rationalization which would have been counter-productive since LAMATA does not have redundant staff.

Since the appointment of the new MD, the Management has still decided to remain on the reduced salary and let their work show their value and contributions to the work of the Government on transportation.

The LASG did not have need to provide Counterpart fund for the LUTP2 because the expenditure head that was to be funded by LASG in the project was for overhead costs of LAMATA operations at $10M which LAMATA has been able to fund from its revenue stream.

2.4.8 CORPORATE AND INVESTMENT PLANNING DIRECTORATE

The Corporate and Investment Planning Directorate (CIPD) is central to achievement of the LASG's transportation strategic plan for Lagos State. There are 5 sub-units: Transport Planning and modelling, Investment Planning, Programs & Monitoring, Environmental and social Safeguards and Research and Development (R & D). The Directorate is responsible for monitoring projects that are already listed and evaluated and contained in the STMP and it ensures compliance with project design and achievement of the KPIs through its M & E unit (see below). The activities of the Safeguard Unit evaluate stakeholders in every new project in order to identify potential winners and losers when new transport ideas and projects are to be implemented. The M & E functions as a data collection unit and provides data to be used by LAMATA and the LASG for planning and implementation of projects. The functions of the sub-units are discussed below.

BOX 6: BEST PRACTICES OF THE CORPORATE & INVESTMENT PLANNING DIRECTORATE

- Economic analyses of roads to determine which to accord priority
- Project appraisal to determine best fit
- Specialised and sometimes customised training for greater impact. Sometimes trainer is brought to LAMATA from base abroad for intense and hands-on training customised training (e.g Caliper software training) that suits the Lagos transport situation as opposed to generic training at the Consultant's base in the USA.
- Technology transference to staff in the unit aids seamless succession in the unit.
- Synergy between LAMATA and sister ministries and agencies -Ministry of Transport, LASTMA, Ministry of Environment and Ministry of Works.
- Comprehensive data library with and easily retrievable.
- Demand and use of RAPs and ESMP

There are a total of 8 staff members in the department, three of whom are senior cadre, two middle and three low (junior) cadre. There are also two ancillary staff. The department at present is understaffed especially in the Safeguards Unit on account of the death of the Environmental Specialist in 2016 and the retirement of the Safeguards person in 2017. Recruitment is imminent in order to keep up the standards of LAMATA in Resettlement Action Plans and other safeguard and environmental issues. The department also needs more middle cadre staff such as a Transport Planner. The Director, Dr. Frederic Abimbola Oladeinde became the Director late in 2016 but prior to that he was Head, Transport planning thus he naturally steps into a position where his expertise is most appropriate. He cuts a picture of someone that is passionate about transport planning and he was particularly proud of the sustainable policy outlook of Lagos Urban transport planning as enunciated in the STMP with the inter-modal scope and network of routes possible for Lagos State. The fact that the LASG through LAMATA and sister agencies have such a blueprint means that there is a system and an order to interventions in the Transportation sector and the haphazardness of the pre-LAMATA days are over.
Some of the areas of demand and where there is pressure to deliver results are:

- The Blue line –pressure to complete
- The Red line – bidding is ongoing and project out to commence in 2018
- The Bus reform Ikeja-pressure to complete the terminal. Route analysis already done.
- The Oyingbo Terminal-contract awarded
- The Yaba Terminal-contract has been awarded
- The TBS Terminal is concluded
- The Oshodi Terminal is a public private initiative and the Governor's plan is that Oshodi will be a transport hub. Presently LAMATA is collaborating with the State Government on the Abule –Egba to Oshodi BRT line.

The CIPD has had to develop a good working partnership with sister agencies in the transport sector in the LASG. For example, in the development of the on-going Ikeja Bus Terminus LAMATA was able to draw on the muscle and clout of the Ministry of Transport which had a hold on the bus operators in the many garages around the Terminal site in Ikeja through the NURTW. When it was time to move the buses out of the site to make way for the construction it was the Ministry of Transport that was successful in fostering a prompt RAP and eventual relocation of the bus operators to the alternative site allocated. Also for the Tafawa Balewa Square Terminal, the infrastructure component was developed by the Ministry of Transport but it was LAMATA that was able to make value additions in the operations of the ticketing, taxi numbering, record keeping about fleet numbers, and number of trips, and in the development of an operations' manual. LAMATA also relates quite closely and effectively with LASTMA and to the Special Adviser to the Governor on transport and also enjoys very good working relationship with the current acting Commissioner of Transport. In a nutshell, a good working relationship and synergy appear to have evolved among the various arms of government. Instead of the various agencies competing with one another, the understanding appears to be that of synergy and cooperation amongst all the various arms of government, relying on the strengths of one another, with a working relationship such that LAMATA might eventually become the implementation arm of the ministries while government agencies might be responsible for policy formulation and regulations.

The specific activities of the other units under the Corporate and Investment Planning Directorate are as follows:

2.4.8.1 TRANSPORT PLANNING AND MODELLING

LAMATA was set up primarily to provide a holistic plan and to develop a befitting transport system for the Lagos Metropolitan Area and it has had over 10 years of success on this mandate. LAMATA has achieved a great measure of success especially with the implementation of the LUTP 1, which ushered in the first ever Bus Rapid Transit (BRT) system. LAMATA has also made its mark on the and the LUTP 2, which extended the BRT corridor and has addressed rehabilitation problems and improved the quality of road furniture on many roads in the Metropolis. The partnership in Bus franchise of the BRT corridor also shows a sustainable and successful working relationship between the private sector and government.

Some of the features that the Transport Planning and Modelling Unit focuses on in transport planning include:

- Priority lanes for busses and high occupancy vehicles.
- Improving public transit.
- Traffic calming.
- Enhancing pedestrian safety and areas.

- Parking management.
- Promoting bicycle use.

In the area of policy and planning documents, the Unit has responsibilities for the following:

- It has developed and updated the Strategic Transport Master Plan (STMP) for Lagos State
- Conducted studies to develop the Transport Demand Model to support the Transport Master Plan for Lagos State.
- Appraise transport schemes in line with the Lagos State transport policy and objectives
- Develop transport modelling and forecasting guidance and advice note for LAMATA
- Improve Freight traffic planning in Lagos State and in this wise it has conducted the Freight Demand study.
- Advise on multi-modal transport policies, strategies, plans projects and methodologies to help develop and deliver Lagos State Government's strategies.
- Review transport planning analysis, studies and assessments using methods, standards and guidelines in line with those set by LAMATA and external complimentary agencies.
- Lead the development of specific traffic surveys and provide data required for planning and programming of needed public transport improvement.
- Utilize existing and/or develop & maintain appropriate traffic & transport models, tools & data and carry out analyses in association with other internal & external parties.
- Provide professional advice on work areas to LAMATA management and other stakeholders.

2.4.8.2 MONITORING AND EVALUATION UNIT (M & E)

The M & E unit is a pivotal unit of LAMATA. The unit undertakes the systematic process of collecting, analysing and using information to track projects' progress toward reaching the respective objectives. Monitoring at LAMATA focuses on processes, such as when and where activities occur, who delivers them and how many people or entities they actually reach. In the LUTP2 for example, monitoring commenced immediately the project began with monitoring plan laid out and all indicators to be tracked agreed especially the KPIs and the indicators for achieving the PDOs.

Specifically, the M & E Unit does the following:

- "Design appropriate system and procedures for effective performance monitoring framework implementation.
- Establish targets set by World Bank and the Lagos State Government and notify departments and units for compliance purposes.
- Identify, recommend and establish the application of a most appropriate and up-to-date software programme for effective project monitoring, supervision and management.
- Ensure the core competence of Corporate Planning department staff in the use and application of the approved software programme.
- Advice and issue reports to the Managing Director and the Board periodically on matters related to Project planning, monitoring and management as appropriate.
- Review objectives, programmes and plans of action for the first Five-Year period as enunciated by the World Bank.

- Guide, and liaise with departmental and unit heads for input into the Five -Year Corporate & Investment Plan.
- Recommend changes in initial plan where necessary, in view of current realities.
- Prepare the reviewed and updated Five-Year Corporate Plan.
- Break Plan down into detailed annual Business Plan.
- Prepare three-year Rolling Plan of the organization.
- Divide Plan into Annual Action Work Programmes."

The findings of the ICR on the M & E Unit is that there is obviously a devotion to data collecting, storage and retrieval robustness. The Unit has benefitted from staff retention in that the M & E officer under LUTP1 remains the same under LUTP2 and the experience over the years has developed into expertise. The project benefits from copious data and the ease of retrieval electronically and in hard copy is commendable. Perhaps what is left is for the LAMATA to set up an electronic library where the LUTP 1 and 2 data can be made available as a training resource for other state transport agencies and the public in general.

2.4.8.3 ENVIRONMENTAL AND SAFEGUARD UNIT

The Environmental and Safeguards unit is basically a risk assessment and mitigation entity. It is the unit that interfaces with the people that will be affected by any project (PAPs). The World Bank describes safeguard policies as those, which provide a mechanism for integrating environmental and social concerns into development making. There are many possible risks especially in construction projects including displacement of people and demolition of property leading to loss of income and jobs. A project must assess the risk and mitigate or compensate people who will be affected by the project and consider the depth and breadth of the project impact. Apart from safeguards to people and property the unit also evaluates the project impacts on the environment. This is a sustainable issue that projects must not leave the environment worse off after it is completed, thus the process of project selection, siting, planning, design and implementation must aim to prevent, mitigate, or compensate for adverse environmental impacts and bring about positive impacts – environmentally and socially. LAMATA's Environmental and safeguards Unit considers the natural environment (air, water and land); human health and safety; social aspects (Involuntary settlement, indigenous peoples and cultural property) trans-boundary and global environmental aspects of project implementation.

The unit usually works hand in glove with the External Unit of the Authority because both units by the nature of their functions have to relate with stakeholders and so they need each other's expertise.

The Environmental and Safeguards Unit is also responsible for the following:

- "Prepare periodic report on all activities carried out on environmental issues.
- Assist in the production of an environmental assessment, procedural manual.
- Contribute to the developmental policy, strategy, objectives, and standards, for LAMATA.
- Identify opportunities for environmental capacity building in LAMATA among the staff and in other institutions and government agencies whose remits overlap or influence transport or environmental outcomes.
- Ensure staff and operational compliance with LAMATA policy standards.
- Contribute to the design of and reporting on a monitoring and evaluation programme for LAMATA's environmental performance.

- Evaluate and Review all Expressions of Interest on Environmental and Social assessments and all phases (inception, draft final and final) of the studies thereafter.
- Liaise with relevant government agencies on land acquisition of all our projects.
- Assist in the framework of the TOR for consultancy services on resettlement matters.
- Have up to date and reliable information on proposed resettlement and its impact on the displaced and other adversely affected groups.
- Liaise with relevant government agencies on land acquisition of all our projects.
- Community Engagement- In partnership with Media and communication unit.
- Assist with the delivery of Environmental Assessment studies. (Environmental Impact Assessment)"

2.4.8.4 RESEARCH AND DEVELOPMENT UNIT

The Unit concentrates on delivering LAMATA's research agenda which incudes the following:

- Setting and assessing emission standards of greenhouse gas production and the level of irreversible damage that may have already occurred and mitigating against further damage.
- Researching new technologies for reducing greenhouse gas emissions and oil consumption which will require major transformations in vehicle and fuel technology.
- Collecting real-time data on traffic flow, noise, air pollution levels, etc., and using this information for regulation and individual user decisions.
- Control of congestion and environmental impacts which requires radical changes in transportation mode choice and land use, the challenge being effective ways to inform and provide incentives to individuals so that they make choices that are consistent with overall sustainability goals vehicle choice and housing choices.
- Development of effective techniques for financing, construction, rehabilitation and maintenance of transportation Infrastructure renewal so as to address the problems of an aging transportation infrastructure at both the national and international level.
- To facilitate a coordinated land use and transport planning process through education.
- The development of a multi-mode trip end forecasting model: This would be done in a form which allows its direct use in the assessment of different forms of developments in Lagos State and for use in strategic multi modal studies.
- The development of methodologies for goods vehicle forecasting: This is essential for developing a freight strategy for Lagos State and at a national level.
- Development of Interchange guidelines: Developing a set of criteria for different types of transport interchanges.
- Development of non-motorize transport policy.

2.4.9 BUS SYSTEMS DIRECTORATE

The main function of the Bus Systems Directorate is to ensure the efficient and effective planning, implementation and operations of bus transit systems in Lagos Metropolitan area, which include the BRT systems, Franchise Schemes as well as the informal bus systems in the Lagos Metropolitan Area. The specific core functions that are performed in the Directorate comprise the following:

- New Bus Transit Service Planning

- Upgrade of existing Bus Service Operations
- Franchising
- Regulation
- Monitoring of Bus Transit Operations and Support System
- Implementation of Soft systems such as ITS.

To guide the achievement of the core functions, the Directorate described an explanatory scope of functions as follows:

- To lead the strategic reform of the bus transport sector in Lagos State in accordance with agreed LAMATA corporate objectives for the sector.
- To provide expert input/specifications on infrastructure needed to support effective bus project implementation.
- To plan, design and implement Bus Transit systems (mass transits and feeder services) in Lagos Metropolitan Area.
- To plan, design and implement support systems and plans to compliment and improve the services of the deployed bus systems in Lagos.
- To promote the definition and application of Quality Bus Standards in the implementation and provision of Bus Transport Services in Lagos State.
- To oversee the realization of an efficient and effective Bus Transport network in Lagos State including planning, regulating and franchising of Bus transit routes in Lagos Metropolitan area.
- To ensure seamless integration of bus services and other public transport services.
- Franchising of bus operations and providing platform for private sector participation in the operations of Bus Mass Transit System.
- Provide regulation and Enforcement for the operations of Bus Mass Transit System.
- To establish strategies and plans for the development and motivation of staff in the Bus System Department.
- Implementation of Soft Systems e.g. ITS and any other technologies to optimize the operations of Bus Mass Transit System

There are 4 units in the Directorate, viz; Franchising Management, Bus Operation, Bus Systems Analyst and Monitoring and Enforcement. The Franchising Management unit's functions include developing competitive and comprehensive criteria for the selection of operators for the bus schemes and developing franchise agreements and operations specifications and ensuring operators' compliance with all conditions of operations. The Bus Operations' unit develops manuals for the the bus transit systems that are set up and ensure compliance. The unit also carries out feasibility studies and design operational standard and specification for bus route implementation as well as coordinate bus operations' data collection, analysis of data along both qualitative and quantitative mode and use these data for network planning and implementation. The Bus Systems Analyst reviews all design documents and reports, develops plans for new bus and public transit projects, reviews feasibility reports, prepares TORs, and support system provider agreements and carry out project risk assessments, among others. The Monitoring and Enforcement Unit develops monitoring templates along with in-house support team, assign monitoring teams in shifts to the bus routes, ensure the teams monitor the routes according to agreed methodology and logs and ensure that all issues identified along the transit system corridors are looked into and resolved and also identify possible risks to the successful operations of the monitoring team and liaise with commuters. This unit also

reports damage to bus infrastructure and ensure the apprehension of the culprits and also handle all police, LASAMBUS, LASTMA and Fire Service issues, to secure immediate response to all forms of accident or crisis encountered on the corridor. The unit monitors the enforcement of the BRT law and regulations and liaises with the Task Force to ensure enforcement.

The Directorate has 2 Franchises. The first is to the BRT corridor from Ikorodu to CMS which is operated by Primero Transport Services Limited. This franchise was earlier held by the 1st BRT Cooperative of the The Directorate has 2 Franchises as follows:

(i) BRT corridor from Ikorodu to CMS which is operated by Primero Transport Services Limited.
(ii) Bus Franchise Scheme (BFS) from Maryland to Iyana-Ipaja operated by Capetrust Limited

2.4.9.1 BRT FRANCHISE - PRIMERO TRANSPORT SERVICES LIMITED

The BRT Franchise traverses the corridor from Ikorodu to CMS and is operated by Primero Transport Services Limited as Franchisee. This franchise was earlier held by the 1st BRT Cooperative of the NURTW, the first ever franchisee running the Mile 12-CMS BRT corridor. The franchise to this cooperative society was terminated in 2015 after repeated warnings.

Primero Transport Services Limited (PTSL) manages and operates the 20 Km-Bus Service Corridor with over 50 bus stops from Ikorodu to Tafawa Balewa Square (TBS), the franchise agreement with the previous operator, the first BRT Coop, having been terminated for noncompliance with the agreement. The BRT operations from Ikorodu to CMS was started on November 12, 2015 with a delivery of 434 high capacity air-conditioned buses acquired by PTSL. On its anniversary, a year later in 2016, PTSL could only engage 300 of the buses in its operations. Operating at 69% of its capacity, the Franchisee achieved an average daily ridership of between 105,000 to 120,000 passengers per day which is 33% of the target of 300,000 ridership per day for the project. The World Bank Mission of November 2016 identified the following four key factors that inhibited the performance of the BRT to meet its target during this period. The factors, and the status of the project at ICR review are as follows:

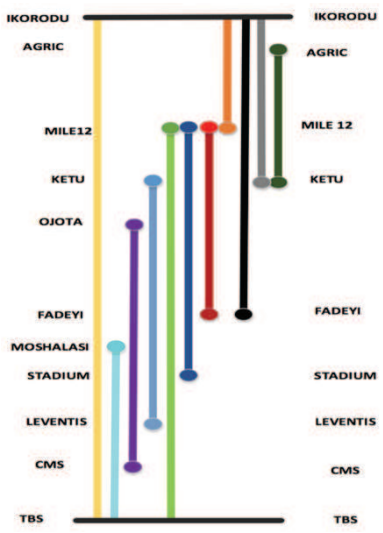
S/No.	Factors	Status at ICR
1.	On-going civil works in the BRT-Lite upgrade for the Mile 12 to CMS section	This impediment has been removed as the civil works from Ikorodu to Mile 12 has been completed at ICR
2.	Delay in effective enforcement of exclusivity for PTSL	There is the need to enforce and monitor the exclusivity right on the BRT Corridor from Mile 12 to Ikorodu. Our fieldwork survey showed that there was mixed transportation on the corridor which hindered the smooth operation of the BRT. Two wheelers charged their passengers additional fares for the use of the BRT lane dubbed as "express lane."
3.	Absence of Intelligent Services (ITS) during the first year of performance	The project plan was for the pilot installation and test running of ITS with 24 buses in the fleet out of the 434 buses by December 2016 and the remainder in phases to be completed by April 7, 2017. At the end of December 2016, pilot test on 20 buses were implemented. At ICR, more than 80 buses have been fitted with ITS and the program will become fully operational in May/June, 2017.
4.	Quantity and quality of installed speed bumps, which may not be compactible with the full operational and service plan.	The speed bumps installed at intermittent locations on the corridor did not appear to pose operational challenges to the BRT between Mile 12 and Ikorodu.

PRIMERO INTERNAL OPERATIONS AND STRUCTURE

PTSL carries out surveys from time to time to get customer feed back on its services and in this way, improvements to service delivery could be made. It was the information and feedback obtained from such surveys that prompted the management of PTSL to decide to increase the number of early morning buses.

Disabled passengers are given priority in boarding buses and are provided dedicated seats on the buses. There are no ramps or special steps for the disabled but bus inspectors are duty-bound to assist disabled persons to board the bus. PTSL is aware that there are no seats at most of the bus stops for the elderly and the disabled. It was noted that this should be part of the furniture for bus shelters that was provided by LAMATA.

FIGURE 7: BRT ROUTES: SOURCE LAMATA RTPI



PTSL does not have special fares or concessions for people with disability or for school children. All passengers pay the full fare to use the service. The company is however considering a policy that would support the sale of subsidized child-rate tickets.

PTSL contracted the hiring of bus drivers to a third party and operates with a fleet of 780 permanent bus drivers which includes 6 female drivers. Drivers work eight-hour shift. A bus driver on the early hour shift resumes 4.30 am and closes at 12.30 pm. The low level of female drivers is attributed to cultural norms as very few women in Nigeria drive heavy-duty vehicles. However, to break this barrier and to provide employment opportunities to more females, PTSL is encouraging more female bus drivers to join the organisation. Recent efforts in this direction by the management of PTSL to encourage the employment of female drivers include the Managing Director personally going on the radio and encouraging female drivers to apply to join the organisation. PTSL also usually carry out social media chats to increase female participation in the drivers' cadre. The target for the employment of women as bus drivers in PTSL is 25 per cent, an ambitious plan from the current low of less than 0.8 cent in the system. Further efforts to create a gender balance in the organisation include female drivers being given preference to daylight working hours and the flexibility for women to work consistent shifts at weekdays. PTSL organises a number of training programmes for the bus drivers and these include, safety, customer service, human relationships, temper management, etc. Bus drivers caught over-speeding on the bus corridor are sanctioned or dismissed.

BUS ROUTES, FARES AND OPERATIONS

Tickets are sold in three different categories from Ikorodu to TBS with the current fare structure set namely at: from Ikorodu to Mile 12, at N100.00; Ikorodu to Fadeyi at N200.00; and from Ikorodu to TBS at N300.00. The buses are all air-conditioned and designed to carry a capacity of 42 passengers sitting with additional provision for 20 standing passengers. The buses operate a 24-hour bus service, the first of its kind in Nigeria. The services are divided into express Peak, normal hours and night Service. Sixty buses are dispatched daily to commence the early morning operations from 4.30am to 6.30am. The peak hour period starts daily from from 6.30am to 10am and from 4 pm, with normal bus services. The night bus service

commences from 11 pm and ends at 5am in the morning with a fleet of only about 10 buses per night. The all-night bus service was said at project appraisal in November 2016 to have generated 124,000 trips since its inception in February 2016, carrying about 408 persons per day. It is hoped that when coupled with increased security system, a functioning ITS, that this will assist the growth and development of the night economy in the Metropolis. At weekends, the number of buses are reduced by as much as 50-60% of weekday demand for operational efficiency.

TICKETING AND SECURITY MEASURES

Bus ticketing was outsourced to 14 Vendors. The ticketing system is off board and vendors buy an agreed quantity of tickets from PSTL by making payment to Sterling Bank, the bank that syndicated the loan for the purchase of the initial stock of 434 buses to jump start the operations. To ensure equity and fairness, the vendors are allotted different bus stops on monthly basis. For practical purposes, two vendors are assigned to a bus stop and passengers can buy tickets directly from any of the vendors. Tap-in Cards (e-purse) was previously available for customers wishing to purchase tickets in advance. This has been phased out and PSTL plans to introduce a new electronic system, the electronic smart card system, in a couple of months. The ticket vendor and Bus Inspectors who are staff of Primero, ensure orderliness at the bus stops. The process of ticketing may be described as follows:

Commuter Gets to the Appropriate Bus Stop

↓

Commuter buys ticket for a particular route from the Ticket Vendor

↓

Ticket issued is validated by Ticket Inspector before boarding

↓

Commuter boards the bus from the Queue

↓

Impromptu Ticket Inspectors checks ticket on the bus to ensure Appropriate ticket is purchased

The ticketing machine operates like a POS system but experiences frequent shutdown as a result of the down time of the battery, which in most cases are in the region of 2 to 3 hours. Relevant fare is keyed into the machine and ticket is issued. To minimise fraud and ensure daily sales are accounted for, each ticket

issued has a security code number, which electronically generates, the amount, date and time of purchase. Penalty for ticket evasion or incorrect ticket purchase leads to a N5,000 fine or prosecution. This huge penalty acts as a deterrent for ticket evaders.

Although LAMATA provides security at the bus stops there are still concerns about risk of security to commuters at the bus corridor. To ensure sustainability and smooth operations of the scheme, LAMATA deploys monitoring and enforcement teams to monitor the operations. Operation staffs are positioned at the Majidun Depot, Ikorodu terminal, Agric, Mile 12 terminals and TBS by lAMATA. More effective and efficient monitoring of the scheme will occur when the human presence is replaced by the artificial Intelligent Transport System which is being planned to be in place shortly. There have been cases of robbery and assault on passengers, ground staff and ticket Vendors in the past. In addition to the efforts in this regard by LAMATA, PTSL is also providing additional security to augment the preventive actions LAMATA has been taking. Ticketing Vendors have reviewed their logistics for carrying cash and have improved the security around the bus stops in general by the presence of law enforcement officers. Public awareness adverts about the penalty for assault on staffs and operatives of the BRT are displayed on the bus LED screen to create awareness to the public of the consequences of offences against the staff of the BRT. Observation based on our field survey showed that there is the need to do more in this area.

STATUS EVALUATION

A status evaluation carried out by LAMATA in October 2016, benchmarked the performances of PTSL against the standard performing indicators. The result is shown in the table below.

TABLE 9: STATUS EVALUATION OF BUS OPERATIONS

S/No.	Indicators	Expected Outcome	Actual	Variance	Remarks
1	Average Daily Passengers ridership	327,600 PAX	119,098 PAX	-208,502 (63.6%)	The Infringement on the BRT lane by competing operators, denying the franchised operator of exclusivity is affecting the ridership. The indicator showed 63.6% variance from the expected value.
2	No. of Passengers per bus per day	840 PAX	424 PAX	-416 (49%)	The traffic congestion experienced on the non BRT lane coupled with the non-exclusivity of the corridor affects the ridership per bus, giving a 49% variance.
3	Average Vehicle Availability	390 Buses	278 Buses	-112 (28.7%)	Minor accidents and underutilization causes reduced number of buses to be rolled out daily.
4	Maximum no of buses expected on downtime	60 per month	6 per month	1.8 (71%)	Buses on downtime are lower than the maximum allowed value. This indicates a good maintenance regime despite the high accident rate.
5	Fleet Capacity Utilization	90%	64.1%	-35.9%	This shows that the fleet is underutilized as 35.9% of the available capacity are not occupied during operations.

6	Maximum Number of Vehicle Breakdowns per day	60 Buses per month	6 per month	1.8 (71%)	This occurs as a result of clutch related problems, however, there seems to be a decline in the number of occurrence evidenced by a reduction in total break down per month.
7	Maximum Number of commuter complaints per day	10	9	1 (10%)	Most of the complaints relate to ticketing issues and elongated passenger waiting time at the shelters and terminals. Plans are ongoing to improve the electronic ticketing deployment system.
8	Average waiting time of passengers	5 minutes	15 minutes		This is caused by traffic congestion on the non-segregated portions of the BRT corridor and as a result of the ongoing construction upgrade along certain portions of the road, especially at bridge locations along the corridor.

The ridership data improved somewhat at ICR to about 165,000 per day. The data on this and other current indicators of the BRT franchise is contained in ***Appendix 1***

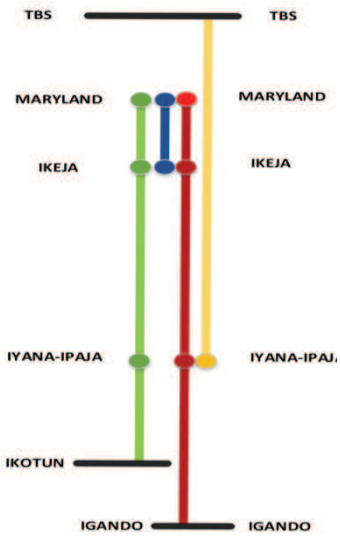
CHALLENGES

Traffic congestion experienced by the BRT buses during peak hours on the non-segregated lane areas of the Ikorodu BRT corridor, for example at Ketu – Mile 12 and Barracks, continue to pose major challenges to the operations of the BRT as infringement of the BRT lane by other operators deny the franchised operator the exclusivity to road use. Two wheelers are most commonly guilty of the violation and the continuous infringement on the corridor has led to avoidable accidents on the corridor. These accidents have also led to increased repair costs and increased downtime for the buses that are laid out of service and had led to increased claims and insurance premiums. It is recommended that the enforcement of the exclusivity right of the BRT buses be enforced and monitored and offenders awarded high penalties.

From the table above, the PSTL appears to suffer from poor deployment of its resources. The organisation suffers 63.6 % loss in average ridership, down from an expected value of 327,00 passenger ridership per day to a low of 119,098 during the period under review. The infringement on the BRT lane was said to account for this low performance. There is also a drop of 49 per cent in the number of passengers per bus per day, down from an expected traffic demand of 840 passengers to 424 passengers. The fall in demand was explained as occasioned by traffic congestion on the non BRT lane and the non-exclusivity Right of Way of the corridor. Of greater concern is the inability of PTSL to convert the advantage of the gains of 71 per cent of low downtime resulting from a supposedly good maintenance culture of its fleet, while still experiencing a fleet capacity under-utilisation of 36 per cent. This suggests that more attention will need to be paid to operational issues such as bus deployment and scheduling regime, traffic data gathering and utilisation for planning purposes, and operational issues such as the reported frequent failure of ticketing devices.

2.4.9.2 BUS FRANCHISE SCHEME (BFS)

FIGURE 8:BFS CORRIDOR BUS JOURNEYS SOURCE LAMATA RTPI STUDY



The LAMATA BFS is for the 16km Iyana Ipaja-Ikotun-Igando public transport corridor pilot demonstration project which started in August 2009. The corridor begins at the Iyana Ipaja terminal and traverses through major roundabouts, junctions and bus stops at Alaguntan, Moshalasi, Egbeda, Idimu, bus depot entrance at Ikotun, Igando road and terminates at Igando terminal. The first 10 km is a dual carriageway from Iyana Ipaja to Ikotun while the final 6 km is a single carriageway from Ikotun to Igando. An additional 10.9km tributary route [Maryland-Iyana Ipaja], originally identified in the Lagos BRT feasibility study was incorporated into the BFS infrastructure design. This tributary route connects BRT with the BFS corridor. The BFS was implemented by Public Private Partnership (PPP) whereby LAMATA provided infrastructure comprising a bus depot garage, 3 bus terminals, 53 bus shelters and TSM measures while Skye Bank provided financing (bank guarantee) to the private sector operator-Mint Seal Nig. Ltd, for procurement of 150 high floor capacity buses. Mint Seal was also responsible for operations and maintenance. The contract with the Mint Seal was terminated and another company Capetrust Investment Ltd became the operator of the BFS along the corridor. The contract with the latter is nearing the end of its term.

2.4.10 INFRASTRUCTURE DIRECTORATE

The Infrastructure Directorate is responsible for ensuring the improvement of quality of roads that are specified under the Declared Road Network (DRN) comprising a total of of 632 Km of roads by rehabilitating, upgrading and maintaining the roads. The DRN are strategic roads which impact the BRT and the future inter-modal transport system of the STMP. The responsibility for supervision of the DRN by LAMATA is derived under the LAMATA Law. There are basically 4 types of road maintenance interventions undertaken by the Directorate and these are routine, recurrent, periodic and rehabilitation. There are three (3) sub-units of the Directorate, Road, Routine Maintenance and Monitoring.

Some of the key tasks of the Directorate are as follows:

- To design and implement a Road and other Infrastructure Maintenance Management System for the execution of maintenance works in accordance with appropriate the LAMATA's corporate policy objectives.
- To carry out infrastructure inventory and condition surveys at regular intervals for the gathering of data required for planning and programming of needed maintenance work.
- To develop annual work plan and monthly schedule of maintenance works and to estimate resources and budget requirement for the execution of annual work plan of the department and LAMATA Infrastructure projects as related to Lagos State, World Bank and other donor agencies.
- To estimate resources and budget requirement for the execution of annual work plan of his department and supervise and control its execution.
- To define strategic reforms of Public Transport in Metropolitan Lagos through Infrastructure provision in coordination with the Corporate & Investment/Transport Planning, Bus services and Railway Departments.

- To define quality standards in conjunction with other directors for the Conception, Planning, Execution, Monitoring & Controlling and Closing-up of all infrastructure projects for LAMATA. This is to enable effective and efficient bus operations/service in metropolitan Lagos.
- To Interrelate with other governmental arms (Ministries, Departments and Agencies) as required, to ensure that LAMATA's projects comply with all applicable legal regulations and overall vision of LAMATA and Lagos State Government.
- Participate in or oversee the pre-qualification and bid evaluation process for consultants, contractors, and other vendors.
- To provide assistance on strategic reforms of Public Transport in Metropolitan Lagos through Infrastructure Provision.
- To direct and oversee consultants, contractors and suppliers involved in the Planning, Execution, Monitoring and Controlling and Closing-up of all infrastructure projects for LAMATA to enable Effective and Efficient Bus Operations/Service in Metropolitan Lagos.
- To oversee the realization of efficient and effective Bus Rapid Transit (BRT) corridors in Lagos State, including planning, execution of infrastructure works, management and maintenance works needed to support effective bus and BRT operations in the state.
- To oversee the development and implementation of procedures for collaboration with safeguards team/ unit to secure necessary approvals towards successful implementation of the Resettlement Action Plan (RAP) of project affected persons, where necessary.

2.4.11 RAIL PLANNING AND OPERATIONS DIRECTORATE

Although there was no rail project implemented under the LUTP2, it is important that LAMATA has a Directorate of rail planning and operations because the global plan for the Lagos transport system as contained in the STMP is inter-modal where rail transport is strategic to mass transit of commuters and the interconnectivity of the transport network. There are 4 units in the Directorate comprising Rail Implementation, Rail Regulations integration, Rail Operations and Rail Franchising

The Directorate is responsible for the following:

- Encourage and actively promote multi-modal public transport linkages so that railway services is mainstreamed in other transport modes and strong links are established with other public transport modes.
- Leading LASG/LAMATA's effort to promote and facilitate the development of an effective Lagos Rail Mass Transit (LRMT) Lagos State.
- Coordinating the implementation of the rail transportation schemes in accordance with the Strategic Transport Master Plan (STMP) including evaluation and selection of the preferred LRMT concessionaire, and oversee the safety and regulation of rail transport within the State.
- Setting, achieving and maintaining quality standards for the delivery of all LAMATA implemented Rail projects and being prime leader of the development of railway operational safety guidelines and standards applicable to all railway lines in Nigeria.
- Plan, guide and showcase Railway transport service delivery, research and innovations to influence policy makers.
- Raise the profile of LAMATA through a positive, proactive and strategic approach to brand building; Act as a spokesperson for the organization on issues relating to railway transport and development

in the media and through participation in meetings, seminars and other strategic/important events at national, regional and international levels.

- Drive innovation in railway infrastructure provision, services and safety regulations
- Contribute to the development of the overall strategic plan for Lagos State rail transport Program to maximize the provision of safe, efficient and sustainable railway transport system for the Lagos populace.
- Lead the development of railway operational infrastructure base with safety compliance
- Facilitating the appointment of suitable operators of the rail operations.
- Overseeing the procurement and implementation of all forms of infrastructure and civil works needed to support the rail project.
- Overseeing the regulatory and safety aspects of all rail project within the State.

3. FINDINGS ON THE LUTP2 COMPONENTS

The findings of the field surveys, the interviews, FGDs and review of studies done under the LUTP2 are contained in this Part and are reported within the Component.

3.1 COMPONENT 1-INSTITUTIONAL DEVELOPMENT AND CAPACITY BUILDING

This component focuses on capacity strengthening of Lagos Metropolitan Area Transport Authority (LAMATA) for continuing to provide an overall vision and a strategic planning basis for transport planning, regulation, monitoring, and administration and coordination of sector-wide management. The original project components and the funds and sources of funding are contained in the following table. The reviews or amendments to the components are also highlighted. Thereafter the findings of the consultants are given.

TABLE 10: ORIGINAL COMPONENT 1 SUB-COMPONENTS & REVIEWS

S/N	Original Sub- components details of Funding	Revisions
1.A	Training, study tours and twinning programs to provide LAMATA technical staff with knowledge of current developments and best practices in public transport systems delivery and strategic planning; support passenger transport operators (in goods and services) by developing their capacity to prepare business plan, enter into route service contracts, develop maintenance capability to improve safety and environmental standards. Subcomponent is financed by $5.5M IDA.	None
I.B	Construction of LAMATA corporate head office to provide a functional and economically viable building with public transport control centre and equipment to improve institutional effectiveness and promote its sustainability. Subcomponent is financed by $13M IDA.	Cancelled and fund reallocated
1.C	Update of LAMATA's planning databases and tools, including travel demand and network models, global information system files by activities such as transport demand, supply and performance data collection, surveys, and model development and upgrading. Financed by $2M IDA	None
1.D	This sub-component would finance administrative and operating costs for LAMATA, staff salaries, and other recurrent expenses. Financed by $10M LSG	None
1.E	Enhancement of general transport management through establishment of transport planning units (TPUs) in at least three local government areas and provision of technical and logistical support and training to sustain the operations of the units. This component would finance: (a) support to LAMATA to develop and implement legal, administrative, and procedural templates for the creation of these TPUs (including critical communications strategies); and (b) support to the TPUs themselves, once created, to carry out core tasks, including: (i) development of a local area traffic plan; (ii) development of a parking policy, implementation and management plan; (iii) development of traffic solutions to address accident black spots; and (iv) action on remedial works and planned maintenance on priority local roads. Sub-component (2) would also include the establishment of a training program for TPU personnel. Financed by$2.5M IDA	None
1.F	Support to Kano Studies and training to develop public transport delivery capacity in Kano. This sub-component will fund the development of a strategic implementation plan to jumpstart the planning and implementation of a bus-based mass transport system in this emerging megacity of 10 million people. It will also undertake a study to derive Kano-specific drive-cycles for deriving carbon dioxide (CO_2) emissions factors and estimate the vehicle population, and provide Nigeria-based training for staff of the Kano State Transport Authority to strengthen their ability to undertake the planning and implementation of a bus-based mass transport system. Subcomponent is financed by $1M IDA fund	None

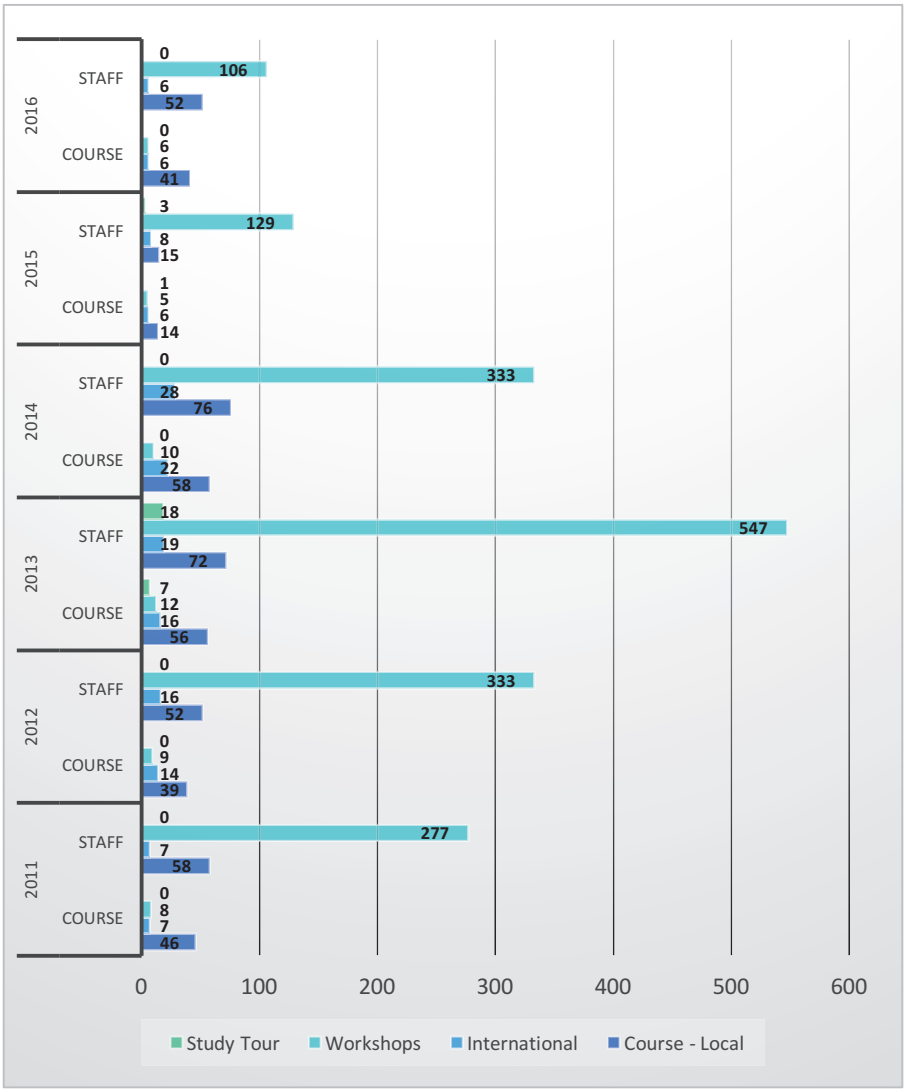
3.1.1 TRAINING, TWINNING AND STUDY TOURS (COMPONENT 1A)

LAMATA Training culture may be said to be one of the organisation's best practice. Training is on both hard and soft skills. As LAMATA builds technical capability of staff so it develops staff capacity in Management and Leadership. Technical courses included courses "Air quality monitoring and evaluation held in London, Advanced Financial Modelling, Procurement Fundamentals, Bid and Tender Management CFO Programme, Computer Hacking Forensic Investigation, Construction project management etc. There was a surfeit of

Management trainings. Chart 4 immediately following gives a summary of the trainings done by LAMATA yearly during the LUTP2.

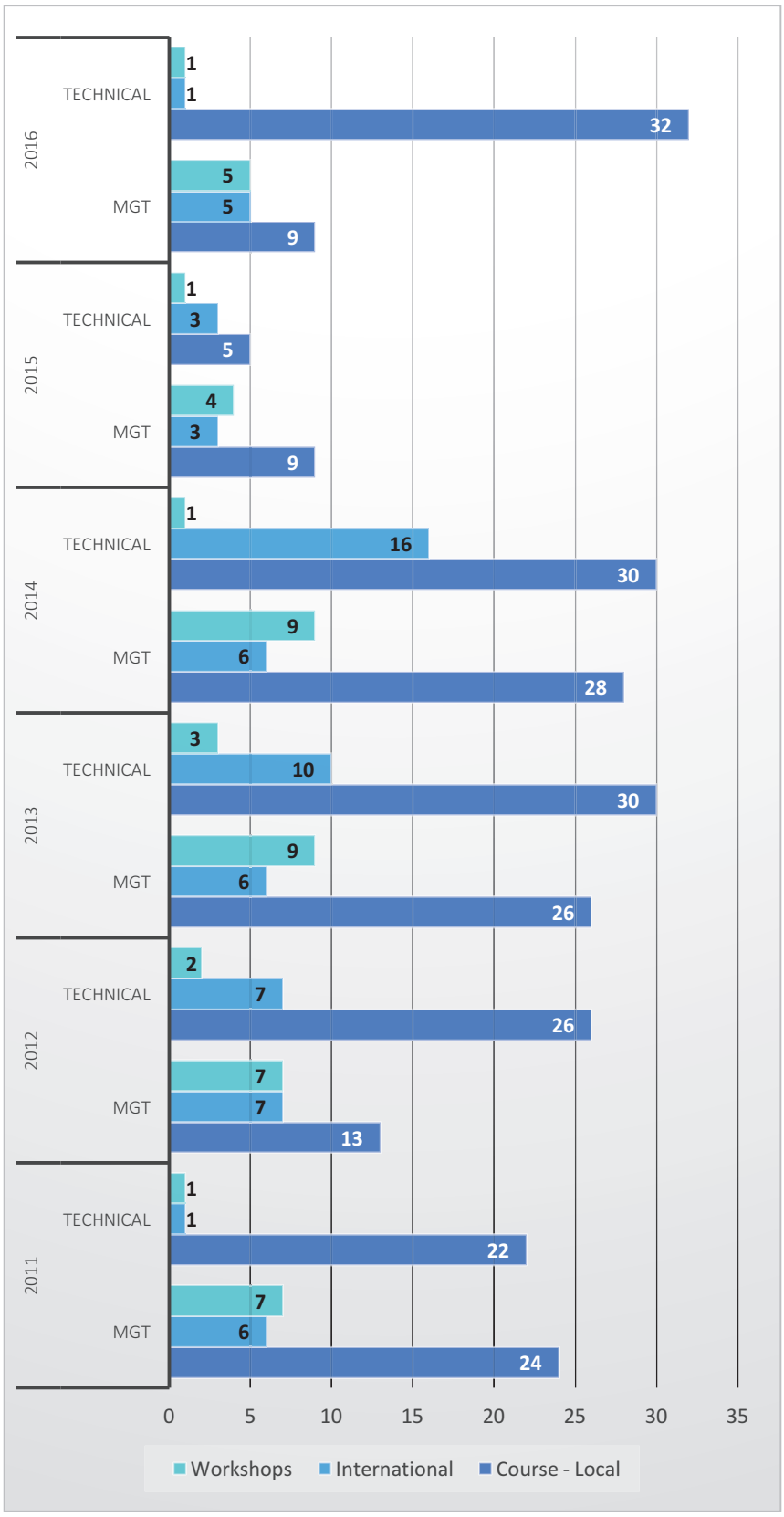
There were no twinning programmes in the years of the LUTP 2. Twinning involves teaming up with some renowned institution(s) for a training. In the case of LAMATA it would have meant travelling abroad and spending time in a transport institution or an institution offering the particular capacity training required. Twinning can help strengthen the organizations involved through a transfer of skills and knowledge and exchange of best practices because it affords opportunities to identify policies, techniques and interventions that have worked in other places and that can be transferable to Lagos State through LAMATA. Twinning gives rise to effectiveness because they pursue specific initiatives and the relationship that is built with the partner institution can endure and lead to mutual support and create a network of support and access to resources. Associations involved in twinning are often inspired by the work of their partner. It is recommended going forward that LAMATA should incorporate twinning programmes for staff even if it means staff are out of their base for a period of time that may be considerable such as 3-6months. The knowledge gained from being embedded in a system over a period of time is considerable and perhaps even more effective than short term courses.

CHART 3: PROFILE OF NUMBER OF STAFF TRAININGS AND NUMBER OF STAFFS TRAINED 2011-2017



- There were more local courses (254) out of 383 courses including workshops representing 67% of trainings in the 6 years.
- 325 people attended 254 local courses showing that multiple numbers of participants attended some courses.
- Workshops were used to maximum benefit to train cohorts. There were 50 workshops in the timeframe wherein 1725 staff attended.
- There were 75 international courses in which 124 staff attended representing 19.6% of the training.
- There were only 8 study tours, 7 in 2013 and 1 in 2015.

CHART 4: CATEGORIZATION OF TRAININGS



- The profile of the courses that LAMATA subscribed to from 2011-2016 shows that both Management and Technical trainings were giving a balanced distribution.
- In 2016, there were a total of 34 technical courses whereas there were 19 Management courses and 32 of the the technical courses were local courses while 1 each were international and workshop.
- Technical courses are those that relate to attaining specialty training in areas such as procurement, engineering, GIS, grassroots/stakeholder mobilisation, external relations, economic analysis, financial /accounting training
- Management courses include leadership, teambuilding, front desk people management etc.
- In all the years under review LAMATA ensured there were Technical courses and this is probably one of the key success factors of the core departments.
- Interviews with some LAMATA departments however show that staff still desire more technical training especially in procurement and Audit. It is believed that technical training should be given to all staff regardless of cadre in technical departments such as Procurement and Internal Audit and safeguards so as to prevent capacity deficit if the most senior member of the Unit is promoted and the knowledge he has, was not devolved downwards.

3.1.2 LAMATA CORPORATE HEAD OFFICE (COMPONENT 1B)

The LAMATA Corporate Head Office has not been built. The Sub Component was cancelled and funds allocated to the building project of $13m (IDA) was reallocated during restructuring. LAMATA still remains in its rented office premises at Motorways Plaza. The rented office is now not ideal and there is a real felt need that the Corporate Head office is imperative. The reasons for the status quo is more in Government's political leanings rather than in any failure on the part of LAMATA. The erstwhile administration under Governor Babatunde Fashola had a concept in which all parastatals of the LSG would be located in one location similar to what obtains in the LASG Secretariat Alausa and it was muted that the location would be along the Secretariat Road leading to the toll gate area. Because of this, permission was not given for LAMATA to develop the land earmarked for the Head office on ASSBFI Road, CBD, Ikeja. Another reason given was that the ASSBFI road land fell within the metroline rail project. The current administration seems inclined to allow the ASSBFI road to be confirmed for LAMATA head office. In the meantime, LAMATA has began to develop a temporary Head Office at the Ojota loop, a place which was hitherto earmarked as a terminal for the private sector BRT franchisee. The rationale for this move is that the company operating the BRT franchise Primero Transport Limited has been allocated a Terminus and Bus park at Majidun and so does not require another Terminus.

3.1.3 TRANSPORT MODEL UPDATE (COMPONENT 1C)

The sub-component is financed by $2M IDA funding and it is for the purpose of update of LAMATA's planning databases and tools, including travel demand and network models, global information system files by activities such as transport demand, supply and performance data collection, surveys, and model development and upgrading. The sub-component covers essentially consultancy activities. LAMATA procured and conducted the following studies/surveys:

(a) Extension of the Strategic Transport Master Plan and Travel Demand Model to cover the Mega Region
(b) Value of time and transport elasticity study for the Mega City Region
(c) Freight Demand Study

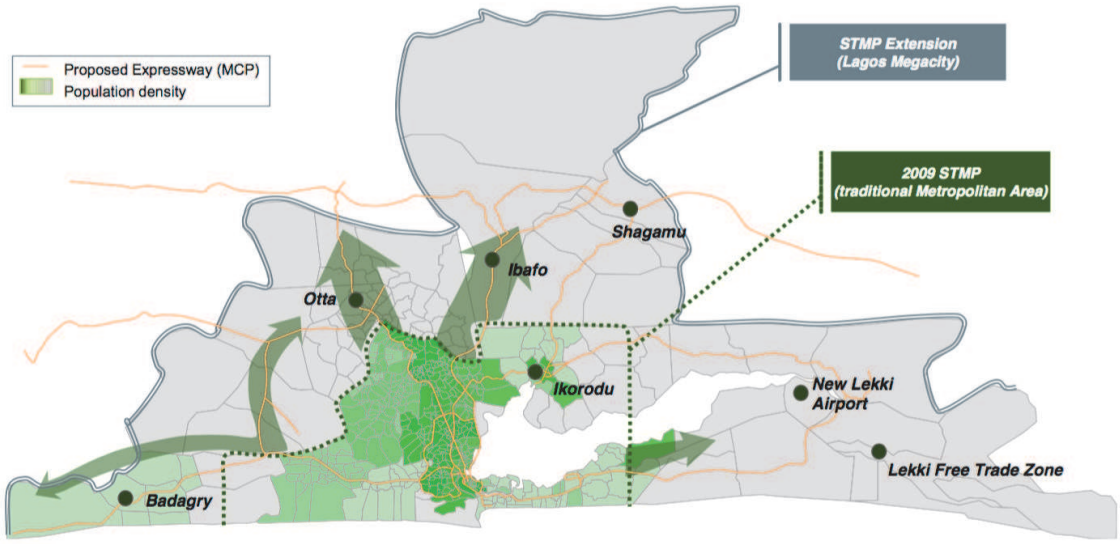
3.1.3.1 EXTENSION OF THE STRATEGIC TRANSPORT MASTER PLAN (COMPONENT 1CA)

The Strategic Transport Master Plan (STMP) is the vision and plan of LASG for the Metropolis over the next two decades as it strives to manage its growing transport demand. "The plan identifies possible transport facilities and services to manage the growing travel demand over the next two decades." The first Transport Master Plan was drafted in 2009, but since then, Lagos Metropolis has also grown beyond its original boundaries and the transport outlook for Lagos State must therefore grown beyond the metropolis into conurbations of Ogun and Lagos States, thus LAMATA commissioned the consultancy for an update of the STMP.

The objectives of the transport master plan consultancy included the following:

- To develop a vision for the Lagos mega city regions over the next 20 years, focusing on transport and land use integration.
- To develop an integrated public transport plan for the Lagos Mega city region up to the year 2030. The master plan will take as given the recommendations from all the land use model city plans in Lagos State and the parts of Ogun state that make up the mega city region.

FIGURE 9: STUDY AREA OF THE STMP EXTENSION WITH ROAD NETWORK AND POPULATION DENSITIES-SOURCE STMP



- To identify major transport corridors in the mega city region. The Update will serve as input into the Mass Transit Alternative study and the bus route network study.
- Further develop the model to support demand management and policy measures like: fare mechanisms, road congestion pricing, parking management, etc.
- Develop a pedestrian and cycle plan for Lagos to enhance access to public transport.

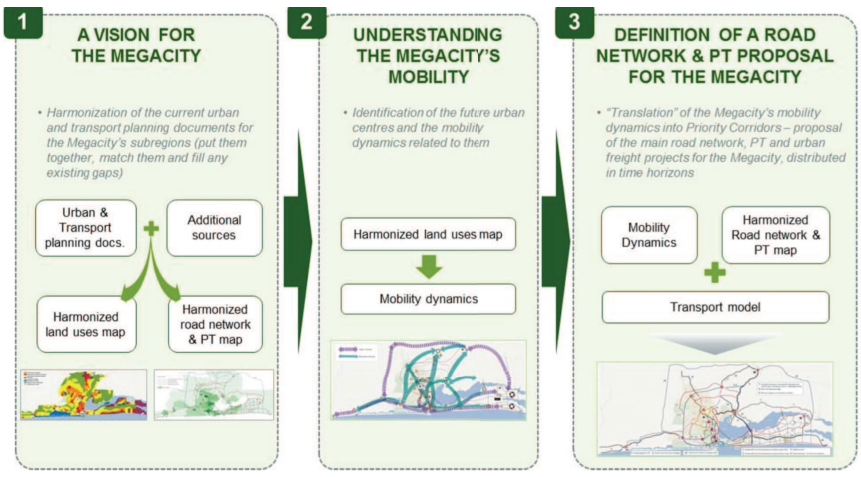
ANALYSES OF STUDY

- The STMP is the blueprint for developing public transportation in Lagos Metropolitan Area (LMA) and Mega city. It is a strategic policy and implementation plan designed to manage rising travel demand expectations of a rapidly growing population while identifying transport infrastructure and services required for meeting travel needs of residents and businesses in Lagos till 2035.
- The STMP consists of an integrated package of physical, financial, institutional and organizational measures targeted at structural reforms of the Lagos public transport sector by transcending its current challenges to a significantly better future based on an ambitious but yet achievable vision.
- Chapter 1 is introductory and underlines the fact that the STMP is an extension of the earlier 2009 strategic transport master plan and travel demand model. It defines the key factors to achieving the STMP as including: Road network and public transportation; Freight transportation plan; Non-motorised transport plan; Road safety plan; Climate change plan; Economic analyses and Institutional proposal and action plan.
- The second Chapter discusses the challenges that have historically beset Lagos since 1960 and that Lagos has evolved into being a Mega City with a great influence on the African Continent. Its population is projected to reach 30 million by 2020. Lagos also has the potential as the transportation and economic hub and gateway to West Africa. However, without appropriate planning, Lagos' accelerated demographic expansion would cause an implosion. The lack of adequate Urban and Transport Development Policy has been a major deterrent to the proper growth of the city, and this has led to the proliferation of slums, degradation of urban areas and facilities, and transportation problems affecting all modes including:

- Neglected infrastructure
- No real alternatives to road transportation
- Insufficient capacity and inadequate road hierarchy
- Inadequate and insufficient link roads and bridges
- Unregulated street trading
- Inadequate traffic management
- Absence of a parking strategy
- Safety and security issues

- The public transportation system in Lagos is poorly regulated and structured in that the system is largely dominated by fragmented sectors comprising many un-regulated routes serviced mostly by Mini-buses (Danfo) providing poor public transport service thereby necessitating a modal change from public to private transportation which generates additional congestion resulting in the degradation of the public transportation system in Lagos. More so, Lagos is a key industrial hub in Nigeria and a gateway for delivery of consumer products across the federation. This consequently necessitates the need for freight movement along the main transport corridor and these share the existing inadequate road infrastructure with passengers. Considering the fact that the Mega-city does not have the basic infrastructure for a proper organization of freight movement, a serious concern on issues such as safety and security, pollution, accidents and congestion is inevitable. All these necessitates the need for an urgent Urban and Transport Development Plan in Lagos Mega-city in order to address the continuous degradation and congestion of the transportation system.
- Chapter 3 starts to define a proposal for road networks and public transportation and advocates a road network in the megacity of Lagos to be developed through a 3-step methodology:
  - Step 1: definition of long term harmonised vision of the megacity
  - Step 2: determination of how the harmonised, unitary vision for the megacity moves
  - Step 3: transportation of the megacity mobility dynamics

FIGURE 10: MAIN STEPS OF THE STMP METHODOLOGY –SOURCE STMP



- Chapter 4 examines the development of a freight plan for the megacity. it develops objectives and methodology to be used for the development of freight transport in the megacity as well as freight distribution at national state level.
- The fifth Chapter 5 describes financing options for developing public transport infrastructure in the State. The key objective being an enabling role to create an appropriate long-term regulatory framework in which providers – both private and public (working in partnership) – can operate efficiently. The driving force behind establishing a PPP arrangement is an admission that

government alone cannot and should not be expected to bear the costs of infrastructure and facilities development for the transport sector and that efficient delivery of services requires PPP which is considered a more viable procurement option for addressing the public transport infrastructure deficit in Lagos Metropolis. PPP may comprise a wide range of contract forms and acronyms (DBM, BOT, DBFO, BOOT, DCMF, PFI, etc). PPP encompasses outsourcing and partnering, performance based contracting, design, build, finance and operate (or build, operate, transfer, etc.) and sometimes concessions.

- Chapter 6 presents institutional and organizational reforms required to support the STMP. One of the biggest challenges of Urban transport in developing regions is the issue of developing an integrated transport management agency. Usual Developing City Transport Situation include the following:
    - Dysfunctional, disorganized transport governance (many organizations with overlapping or conflicting authority and some functions go unaddressed or are poorly handled).
    - Independent planning/implementation/operating authorities
    - Independent highway and public transport organizations
    - Weak regulatory and enforcement bodies
    - National government too involved in purely local matters
    - Human resources limited or lacking
    - No dedicated funding for any PT function (unresponsive to users and public)
- However, the STMP advocates that for the development and implementation of transport infrastructure and services must be accompanied by appropriate institutional and organizational reforms in the Lagos public transport sector.
- Chapter 7 presents choices that may be required beyond 2020 and names Congestion Pricing as one of them. With rapidly growing travel demand, congestion pricing is used as an effective tool for sustaining reductions in level of traffic congestion overtime. Other measures are considered temporary especially when demand is constantly growing. The advantage of this measure is ability to manage demand by adjusting level of fees to maintain desired level of congestion. According to the STMP, in spite of proven advantages, only few case studies of contemporary congestion pricing practise exist worldwide. The best examples are Singapore, London and Stockholm. The main reason for unpopularity of congestion pricing practice is low political willingness to implement necessary reforms.
- The eight Chapter discusses proposed action plan including monitoring and control measures that should accompany STMP implementation. Since the main institutional recommendation is to establish a full scale metropolitan transport authority (MTA), the action plan specifically concentrates on major issues that the MTA should deal with in the next few years.
- The STMP proposed the following Action plans to transform LAMATA into a full scale Metropolitan Transport Authority (MTA):
    (a) Legal Framework - Negotiate the relevant responsibilities and create a proper legal environment
    (b) Planning and design - Develop sound and robust network planning capabilities and ability to design the integrated service
    (c) Traffic management (bus parks & stops) – survey all bus parks and bus stops, prepare detailed designs for relocation, prepare cost estimates, select procurement strategy, secure financing, issue tenders and procure contractors / operators for the bus parks

(d) Traffic management (on-street parking) – Prepare new on-street parking regulations for Lagos Island and VI, select operating concept for the parking management, issue tenders and select operators

(e) Licensing & contracting bus service – Prepare detailed design of bus services as an integrated element in the MRT system, prepare tenders for routes, prepare standards service contracts, issue tenders and select operators

(f) Monitoring and enforcement of bus operation – Recruit relevant site personnel and management, train site controllers, launch routing operation

(g) Passenger information systems – Establish a PT call centre, Launch PT web services with details of all routes and LOS, design information concept for bus parks and bus stops, issue information kits (maps, timetables, network structure, etc.), update information whenever changes occur, market PT services

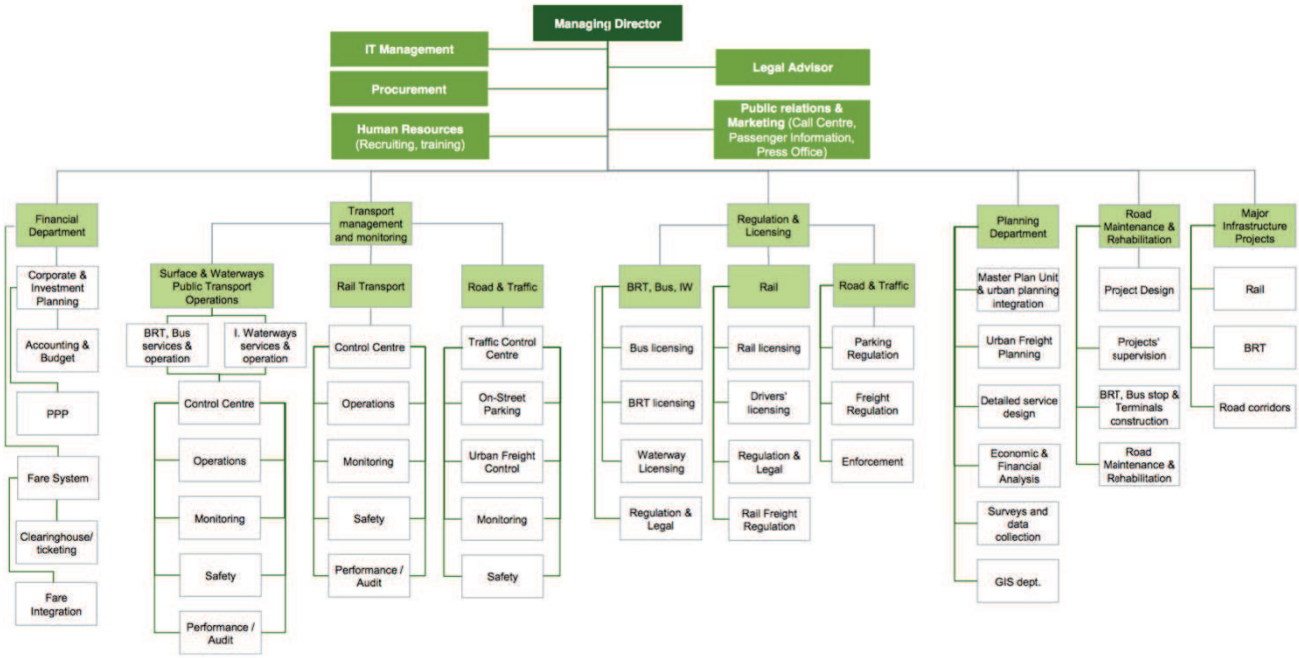
(h) Common smart ticketing system - Select ticketing standards, determine ticketing types, develop clearinghouse for common tickets, select operating concept, issue tenders for installation, select operator, launch system

(i) Financing – approve cost-benefit procedure for public sector financing, strengthen PPP capacity (own and consultants), prepare financial plans for each project to be financed, select optimal procurement technique for each project, issue tenders and select concessionaires / operators / contractors

(j) Rail regulation – establish professional capacity to act as rail regulator (licensing of rolling stock, drivers and equipment), accident investigation, monitoring and control.

- These main activities should be integrated and managed so that within two years, the MTA can be established and become active. Timelines were also set for the schedule of specific activities in the action plan. The organizational structure for the MTA is contained in Figure 10 below:

FIGURE 11: ORGANISATIONAL STRUCTURE PROPOSED FOR MTA (LAMATA) IN THE EXTENDED STMP



3.1.3.2 VALUE OF TIME & TRANSPORT ELASTICITY STUDY FOR MEGA CITY REGION (COMPONENT 1CB)

Lagos as a Mega-City region has two sources of population data, the one from the Federal Census board and the other from Lagos State Government's estimate. The 2006 census estimated the population at 9 million whereas Lagos State Government estimated its population to about 18 million. The significant under reporting is due to residents of Lagos travelling to their hometown/places of origin during the national census so as to provide increased federal allocation to their hometowns.

For analysis of Lagos Mega-City region, the main socio-economic indicators/variables used are GDP per capital, population and income. The average household size for Southern Nigeria (Lagos inclusive) is 4.6 persons and urban household average is 4.9 (GHS 2012/2013). The household size is a critical factor in determining per capital GDP/incomes. In turn the income and GDP per capital are also important for transport planning and Cost Benefit Analysis. However, it has been quite challenging determining the appropriate income level.

At the national level, a mean gross annual household income of 2.45 million naira was determined using General National Income (GNI 2013) of 77.4 trillion naira with a population of 173.6 million and a household average of 5.5 persons (General household panel, 2012/2013). Putting into consideration other factors such as higher income (+24%) in urban areas and tax average of 14% (based on PWC total tax rate, 2.67 million naira/year or 222.8 thousand naira/month was derived as a mean net household income for Lagos.

Using the urban average household size of 4.9 along with average working hours of 18.7 hours per capital per week (GHS 12/13), total working hours was estimated at 397 hours per household per month. Therefore, mean household income per working hours is 560 naira/hr, the median income is 405 naira/hr based on the national income distribution. Another indicator for estimating in the Lagos Mega City project is the GDP per capital - which passes for international benchmarking as regards analysis of vehicle ownership. Using the GDP per capital combined with incomes in Lagos which is 39% higher than national average due to the following corresponding effects;

> +24% rise in household income in urban areas and its difference with the national average and +12.2% due to smaller household size in Lagos.

DEFINITION OF TERMS

- Value of Time (VOT): This is how much value in monetary terms that can be attached to a saving in time from an individual or economic perspective.
- Behavioral Value of Time (BVOT) is the amount of money that travelers are willing to pay to save one unit of travel time. BVOT is an expression of users' perceived costs and can be used to gauge the users'/travelers' likely response to changes in prices of trips. BVOT are usually expressed in perceived prices - resulting from surveys.
- Economic Value of Time (EVOT) is the value of travel time savings to the economy as a whole often used in the economic appraisal of projects. EVOT is an expression of cost unit of account for appraisal purposes.
- User segmentation is the categorization of users and trips embarked upon. For instance, segmentation of passenger trips from the crew of the commercial vehicle. Passenger trips are further disaggregated along the mix of mode or purpose of trip classification. Classification based on purpose will reveal business/work trips or personal purpose trips. Work trip is broadly defined

as a trip undertaken on employer's business and the individual embarking on the trip is paid a wage for the duration of the trip.

- Market Prices Unit of Account describe those prices paid by consumers for goods and services in the open market.
- Factor (or Resources) Cost Unit of Account describes the prices paid by government exclusive of all indirect taxation.
- Vehicle Operating Costs (VOC) are defined as costs which vary with vehicle usage. Typical VOC include fueling, oil, tyres, routine maintenance and repair, as well as depreciation cost attached to mileage. For commercial vehicles, other VOCs may include crew costs, overhead costs such as management, dispatch, maintenance staffs and controllers.

VALUE OF TIME (VOT)

- The end point in the concept of VOT is consumer welfare and maximization of travel time savings. The consumer welfare maximizing approach not only takes into account the alternative uses (work/leisure) that could be derived from travel time, attention is also given to level of discomfort of travel itself - depending on the transport mode.

Conceptual Framework for Value of Time includes;

  - Working time savings
  - Non- working time savings
- For Personal Travel The economic value of time saving for non-business trips is the difference between the marginal valuation of time associated with the traveling and that associated with leisure.
- Revealed preference (RP) analysis estimates value of time which explains actual observed choice behaviour. States preference presents hypothetical travel choices closely related to a trip currently being undertaken.
- For Business Travel: Two modes exist in valuation of VOT savings namely; the wage rate or cost savings model and Hensher model. Hensher model attempts to modify the cost savings approach by allowing for various factors which might affect the value of business time savings.
- Wage rate or cost savings model is based on marginal productivity i.e. savings until marginal cost of production equals marginal revenue.

VOT FOR PERSONAL TRAVEL:

- Over 7000 travelers were surveyed in other to capture the behavioral value of travel time savings for personal (non-work) travel.
- Main Modes: Transport mode used is a function of differences in income levels.
- Trip Purpose: Significant differences in values of time between trip purposes, except for 'in course of work' where values were similar to commuting.
- Gender: No evidence of different underlying preferences between male and female travelers.
- Trip Distance: No significant difference in VOT's by distance travelled or total travel time.
- Income and Income effects: Relative distribution of reported incomes correlates well with the declared travel preference and estimated VOT's.
- The average value for non-working time savings across all modes and purposes is 228 naira/hour.

VOT FOR BUSINESS TRAVEL

The two main parameters used in appraisal of the value of travel time savings for trips undertaking during working hours and the average wage rate and cost of labour to the employer. Average wage rate for permanent employers are:

- Minimum wage 18,000 naira/month
- Average wage rate for the middle class (estimated 34.5 million in 2008) was assumed at 87,000 naira/month with another 5.7 million in the upper middle class category.
- After adjusting for 14% direct taxation and 17.5% social security contribution, average gross monthly wage rate became 71,000 naira. Using the basis of 2,000 working hours in twelve months, the average gross hourly wage was pegged at 410 naira/hour at market cost.
- Economic conversion factor for labour cost = Economic Opportunity Cost of labour (EOCL)/Market wage rate

COMMERCIAL VEHICLE ECONOMIC VALUE OF TIME

According to LAMATA's cost benefit analysis spreadsheet, there are two major parameters namely; A value of time of public transport vehicles of N150 per vehicle per hour and a value of time for private transport of N1,000 per vehicle per hour (including goods vehicles).

In the absence of accurate wage data for different vehicle crew types, the IVT VOT of users was used.

At approximately N450 per hour and two staff (one driver and one ticketer) per public transport vehicle, staff time of both vehicle crew amount to N900 per hour. However, transport companies with large operational fleet with numerous operating cost such as controllers, dispatchers, maintenance staff and management might have this overhead cost allocated to vehicle costs. Doing this would imply a large bus value time of approximately N1200 per hour. The value adopted for large buses/BRT vehicles can also be applied to private goods vehicle in the absence of specific data.

Analysis of stated preference found car users value of time increased with (household) income.

FUTURE GROWTH IN VALUES OF TIME (BVOT AND EVOT);

This should be based upon authoritative projections of GDP per capita, consistent with GDP and population projections.

FUTURE RESEARCH

VOT can also be used to determine qualitative factors such as congestion, comfort, convenience and reliability. Further studies can be done in this regard.

There is opportunity for further research to investigate the effective travel behavior of employed people with a combination of revealed and stated preference. There is also need for time series analysis with the projection of VOT over time.

3.1.3.3 FREIGHT DEMAND STUDY (COMPONENT 1CC)

LAMATA commissioned the Freight Demand Study to provide a more comprehensive understanding of the freight sector in Lagos State in order that the LASG would have foundation for developing policies and actions affecting the Sector. The study would also provide a modelling tool for assessing future freight policies and interventions in comparison to the base case and review existing and planned practices and measures relating to the urban section of the freight transport chain in the Lagos Mega city region. The result of the data would be that Government would be able to promote successful solutions and improve the performance of freight transport.

The study collected primary data through roadside truck surveys and truck count data throughout the Lagos region. Roadside truck intercept surveys were collected at 33 locations across the Lagos metropolitan region capturing information on 2,317 trucks and over 4,000 truck trips. Interview of truck drivers took place while they were queued and in the process of entering or leaving freight facilities. Questions and recorded information included: number of axles, truck body type, location and facility type of previous and next stop, loading status of truck, commodity carried, time until next loading/unloading location, intermediate stops, state of registration, and truck owner. Types of facilities included in the surveys were manufacturing facilities, marine ports, fuelling stations, major open air markets, estates and ways, and the airport.

The roadside truck origin-destination surveys were used to develop commodity flow tables for Lagos State thereby producing estimates of the amount of goods moving in, out and around the Lagos region by local government area, commodity, and mode and estimating flows to other states within Nigeria. Overall, it is estimated that 54 percent of the freight tonnage moved in Lagos are by truck, 46 percent are moved through the port and less than one percent are moved by freight rail and air cargo.
Some of the more salient findings of the study are as follows:

- Truck count data show that three roadways, the Ibadan Expressway, Apapa-Oworonshoki Expressway, and Ikorodu Road are the workhorses in terms of carrying trucks in the Lagos metropolitan region. These roadways should be considered a priority focus of freight improvements in the Lagos region, most notably the development of a long-term maintenance plan. The newly collected truck count data and existing truck count data, were used to develop a new truck trip table for the Lagos region TransCAD travel demand model using an origin-destination matrix estimation (ODME) technique. This improved travel demand model was used to estimate the traffic benefits of recommended improvements to the Lagos regional freight infrastructure.
- The growth in population and economic activity in Lagos will further strain the Lagos regional freight transportation system requiring investments in new freight infrastructure and implementation of new policies to make the movement of goods more efficient. A review of freight institutions and regulations in the Lagos region identified the following as the key issues to be addressed:
    - Lack of a stable transportation revenue source
    - Mismatch between ownership and freight usage of regional roads
    - Disconnect between port stakeholders and operational impacts
    - Lack of customer focus for freight rail and air cargo infrastructure
    - Inability to fully incorporate the informal sector

- Freight Improvement Recommendations were proffered to address the infrastructure, institutional and regulatory issues related to moving goods in the Lagos region across the following five categories:
  (a) Measures to fix Apapa Port area including use of off-site parking facilities, developing new ports, use of Inland Container Depots, expanding rail service, and options for improving pavement conditions.
  (b) Development of three new tolled bridges to increase road capacity and network connectivity in the region.
  (c) Long-term funding options for transportation infrastructure.
  (d) Implementation of a traffic monitoring program.
  (e) Operational changes for key freight agencies/organizations.
- The following Table 7 is sourced from the report and it lists the short, medium and long term freight infrastructure improvement recommendations from the study.
- The travel demand model developed using the truck count and survey data were used to estimate the traffic benefits of these improvements and estimate the usage of new components of infrastructure developed for the study. The key elements of the traffic analysis in combination with a funding analysis demonstrate the following about the recommended improvements:
  - Operational improvements along with off-site parking can be used to cure the short term traffic problems at the Lagos port complex. Over the long term, new container port facilities are needed.
  - All of the new recommended roadway infrastructure would generate sufficient demand to justify the expenditures of the new roadway.
  - Development of a diesel tax and an enhanced port concession arrangement can fully fund maintenance needs of the region's freight infrastructure.
  - State-of-the-art traffic monitoring and management is needed to ensure that infrastructure is used optimally.
  - There is sufficient demand across the three recommended new bridges to warrant consideration of funding these bridges through toll mechanisms.
  - The 4th Mainland Bridge would produce maximum benefits from being a tolled, reversible roadway with pricing set to maximize revenues while ensuring free flow conditions across the bridge.

TABLE 11: MEDIUM, AND LONG-TERM FREIGHT IMPROVEMENT RECOMMENDATIONS IN LAGOS REGION SOURCE-FREIGHT DEMAND STUDY

Time Period	Categories	Recommendations
Short-Term (0-3 years)	Fix Apapa	Develop off-site truck parking area
		Continue inland container depots
		Develop weekend express container service
		Build Lekki Port
	Develop Funding Options	Remove gasoline subsidy
	Develop Traffic Monitoring Capabilities	Truck GPS Registration Program
		Incorporate mobile phone tracking system
	Institutional Changes	Develop freight coordinator at LAMATA
		Convene regional freight committee
		Conduct annual Lagos Freight Conference

Time Period	Categories	Recommendations
Medium Term (4-9 years)	Fix Apapa Port	Build Freight Rail Network
		Incorporate Apapa pavement management into port concession contracts
		Build Badagry Port
	Build New Bridges	Build Reversible, Tolled 4th Mainland Bridge
		Build Tolled Apapa-Victoria Island Bridge
	Develop Funding Options	Develop diesel fuel tax
		Leverage toll revenues
Long-Term (10+ years)	Build New Bridges	Build Tolled Lekki-Ijede Bridge

- The infrastructure and policy improvements recommended must be accompanied by institutional and organization changes focused on project delivery and policy development. The most significant of these changes is the development of a joint Federal-State Authority with a range of responsibilities related to multi-jurisdictional implementation. This authority is required to implement the short-term recommendations of the study and would have the following characteristics:
    - Perform site selection, manage construction, and perform operations for the off-site truck parking area.
    - Manage enhanced port concession agreements in regards to incorporating pavement maintenance into current port contracts.
    - Plan for access roads and rail for ports under development in Lagos region
    - Develop framework to allow Lagos State to tax diesel consumption and designate funds to be used for roadway improvements.
    - This authority should be governed by a Board of Directors with an equal number of Federal and State employees.

The remainder of the recommendations of the study could be handled by a single existing agency including LAMATA, the Lagos State Transport Management Authority, the Nigerian Port Authority, the Nigerian Railway Corporation, the Federal Aviation Administration of Nigeria, and the Federal Ministry of Transportation.

3.1.4 LAMATA OPERATING COSTS (COMPONENT 1D)

LAMATA operating costs is fully met by LSG in line with the terms of the credit. The amount earmarked for this in the LUTP2 is $10M. The LASG funding to LAMATA comes mainly from the dedicated Transport Fund and some subventions from the LASG. LAMATA Management devolved a pragmatic means of managing its overhead costs so as to keeping need for extra funding from the LASG at bay as much as possible. In the year 2015 to 2016 when the new administration took over in the state, there was a period of lull in the activities of the Authority and all that was being managed were the outstanding works on the LUTP2 and no new works, LAMATA being aware that a new administration may not be sufficiently settled to take on new projects or even understand the inner workings and capacity of LAMATA, curbed and curtailed expenditure and brought it to remain

LAMATA FUNDING SOURCES PRESENT AND FUTURE

- Transport Fund
- Bus Franchise Fees
- Advertisement fees
- Bus Terminals and Parks

within the Transport Fund and other accruals through Franchise fees etc. LAMATA senior management staff took a cut of about 16 % in their salary rather than lay off staff in the middle or junior management cadre. This was at a period where the Authority even did not yet have a substantive Managing Director. This action of the Management shows pragmatism, collegiate responsibility and support and team work. It also showed that the leaders in the Authority led by example and considered the needs of their staff over and above their own. The Agency survived the year without having to seek additional funds from the government. The lesson to be learned from the institution of the Transport Fund is that when parastatals are set up, it is best to put an independent source of fund for the activities of the Authority as this is a sure step towards sustainability of the institution.

LAMATA also became creative in seeking new funding vehicles to supplement the Transport Fund. Apart from Franchise fees, LAMATA is looking to use its bus-stops and garages as advert generating avenues and has commenced engagement and discussions with advertising agencies on models for the advert venture. LAMATA cannot use the buses for advertisement revenue because this is ceded to the Bus Franchise operators in the Franchise Agreement. LAMATA will also derive additional funding from concessioning its bus parks and terminals to Private Sector companies to manage on LAMATA's behalf.

On a scrutiny of LAMATA income in the Transport Fund a revenue drop was observed in Years 2015 and 2016. This fall may have been occasioned by the decline in general purchasing power of the people because of the downturn of the Nigerian economy. The FGN also began to apply a policy of no importation of cars through land borders which must have impacted on car purchase and consequently on motor vehicle licences which is the main income stream of the Transport Fund. In particular, customs tariff was raised by the FGN from 10% to 70% making importation unattractive and consequently reducing the number of cars that were licensed. Pre-2015, there were an average of 64,000 licensed monthly but post 2015 this figure reduced to just about 3000. This needs to be studied carefully so that a reliable income stream is not threatened and LAMATA's independence on Funds is not compromised.

3.1.5 CREATION OF TPU$_S$ (COMPONENT 1E)

Lagos State has 20 Local Government Areas (LGAs) and thirty-seven Local Council Development Areas (LCDAs) making a total of 57 LGs with institutional status. Each of these have geographical boundaries and are well connected majorly by road network systems. Other modes of connectivity include water and rail transport. High population coupled with lack of adequate infrastructures to cope with the increasing population have resulted in heavy traffic congestion within the city. Statistics show an increase in low capacity vehicles like danfos, tricycles, okadas and taxis as opposed to larger sized and more efficient buses. Most of these vehicles, are poorly maintained and breakdown frequently. Parking is also a critical issue in urban transport systems and it causes severe traffic problems especially in the urban LGAs and LCDAs. The poor tragic management in Lagos has occasioned needless fatal accidents, traffic gridlocks and environmental impacts and the LASG realizes that addressing the necessary public transport improvements in the LGAs would drastically improve travel efficiency on the roads.

The problems faced by Lagos Island, Kosofe and Ikorodu LGA's include but are not limited to insufficient penal systems to deter bad drivers from reckless driving, inadequacy of traffic lights, flooding of roads due to poor drainage during rainy season, encroachment of available road space by market traders, lack of

pedestrian walkways, a high volume of obsolete and poorly maintained public buses, on street parking, poor traffic enforcement regimes and lack of road signage.

To address the traffic management problems on the Metropolis, the LASG through the WB financed a sub-component of the LUTP2 to set up Transport Planning Units (TPUs) in some LGAs. The planning for the establishment of the TPUs was preceded by a consultancy of Establishment of PTUs. The summary of the findings of the Study are presented following. Thereafter the ICR findings on the TPUs that were set up, the institutional, infrastructural and human resource capacities and the activities undertaken by the TPUs will be presented:

3.1.5.1 SUMMARY OF TPU STUDY

The objective of the assignment is to establish functional TPUs in the Lagos Island, Kosofe and Ikorodu Local Government Areas in a participatory manner and on a basis that is consistent with LAMATA aims and objectives (to be guided by the LAMATA Transport Master Plan) whilst taking into account, existing local government boundaries, the local government roads in the 3 areas, the prevailing and planned land use and the key traffic systems management issues in all the three areas. LAMATA is aiming to provide necessary improvement to road transport infrastructures especially on the BRT Lite Route from Ikorodu to CMS and also seeking to adequately empower the 3 LGAs via institutional capacity building, by retraining relevant local authorities to understand the objectives of LAMATA and in turn to make the BRT service run more efficiently. The proposed intervention would set up TPU for each of the 3 LGAs areas and 8 Local Council Development Areas (LCDA). These include Lagos Island, Kosofe and Ikorodu LGAs and Lagos Island East, Ikosi-Isheri, Agboyi-Ketu, Ikorodu West, Ikorodu North, Ijede, Igbogbo-Baiyeku and Imota LCDAs.

LAMATA engaged with the LGA's and the LCDA's in introducing the TPU project, its aims and proposed methodology. The Consultant used survey instrument (questionnaire) to ascertain and examined the institutional framework of existing Transport Management Units (TMUs), LGA/LCDAs, the legal framework that supported their establishment. An infrastructure audit of transport infrastructures was also conducted and an examination of the Operations and enforcement strategy of the units, and Financing. The survey also examined the conditions of infrastructures and critical road network within these LGA/LCDAs.

The salient study findings are as follows:

- Institutional: Most of the LGA/LCDA have a Traffic/Transport Unit which maintains traffic control. Most of the Traffic enforcement staff are not recognised staff of the LGA, are poorly equipped, lack understanding of what their roles entail and focus too heavily on enforcement and imposition of fines.
- Operations, Enforcement & Infrastructures: Operations of Traffic Units are meant to be guided by the Lagos State Traffic Laws and any byelaw enacted by the LGAs. Most staff are deployed to traffic bottlenecks for traffic control roles and use limited tools like clamps and leased towing vehicles. Infrastructures are mainly bus and car parks, which have been franchised to private operators whose major task is the collection of fees on behalf of the LGAs. These parks lack modern facilities waiting shelters, conveniences, etc. Critical public transport roads within these LGAs have many run down areas, leading to congestion related delays. Traffic Systems Management (TSM) measures are lacking as there are hardly any traffic signs or lane markings.

- **Finance:** Information on finance was not forthcoming from the LGA/LCDAs with only Lagos Island Local Government giving a breakdown of their budget, which showed an infinitesimal allocation to transport.
- The major public transport routes in the LGAs were identified ranked using criteria that includes traffic volumes, length of roads, percentage of Public Transport vehicles, travel speed and socio-economic activities along the routes. The ranking showed the most critical roads in Lagos Island LGA as Obalende – Sura – Adeniji – Police Post and those for Kosofe LGA as Ikosi Road – Shangisha andfor Ikorodu LGA as Ogolonto – Ebute –Ikorodu Roundabout.
- The study proposed 10-Year Operational Plan for the TPUs. The plan is premised on two distinct phases, a Set-up Phase, occurring within the first two years of the TPU i.e. Years 1 and 2 and an Implementation Phase which would be from Year 3 – 10. In the Set-up phase, the TPU would be set up, staff employed and office furnishings and other office equipment procured. The training of staff would also be done as part of the organizational set-up. This phase would also include the commissioning of studies, designs and reports towards the following projects – Development of a Parking Policy/Implementation Plan, Development of a Local Area Transport /Traffic Plan, Development of Traffic Solutions to identified traffic and accidents black spots and Development of Designs for Undertaking Remedial Works & Maintenance of Priority Roads.
- The set-up phase would be wholly financed by LAMATA while the Implementation Phase would see the implementation of the recommendations and outcomes of the studies, reports, designs and transport/traffic plans earlier obtained in the Set-up Phase. This phase would be financed by the LGA/LCDAs; and the LGAs/LCDAs would have to source for finance to implement the outcomes from Set-up Phase, as necessary.
- For the set-up Phase, funding would be required for Organizational Set-up, Operating expenses (OPEX) and Capital Expenditure (CAPEX).
    - The Organizational set-up for each of the TPUs includes office furnishings, office consumables, computers and other office equipment, trainings & capacity development, and also consultancy fees for setting up the TPUs.
    - OPEX includes staff salaries and emoluments, administrative costs, training and capacity development costs and public communications and other information, education and consultation (IEC) costs.
    - CAPEX includes all the cost for commissioning and developing the Parking Policy/Implementation Plan, Local Area Transport/Traffic Plan, and Traffic Solutions for traffic and accident black spots and also the designs of Remedial works and Road maintenance of priority roads.
- To ensure the sustainability of the TPUs, especially from Year 2, when the LGA/LCDAs would be expected to commence funding the activities of the TPU, it was proposed that as a cost reduction strategy, the TPUs should have a lean organisational structure, with the TPU being integrated within the LG structure such that corporate functions including procurement, training, legal, etc. would be handled by appropriate LG departments and that CAPEX should be sourced from LGA/LASG/LAMATA and other funding vehicles.
- **Execution of a Memorandum of Understanding (MoU) between LGA/LCDAs:** To ensure that the LGAs and LCDAs are committed to the TPU, it was recommended that a MoU be signed by the LGA and constituent LCDA i.e. Lagos Island LG & Lagos Island East LCDA; Kosofe LGA, Agboyi Ketu LCDA & Ikosi-Isheri LCDA; and Ikorodu LGA, Ikorodu West LCDA, Ikorodu North LCDA, Igbogbo-Baiyeku LCDA, Imota LCDA & Ijede LCDA. The MoU would cover the funding of the TPUs, provision of office

accommodation, commitment to the LAMATA vision for transformation of the transportation sector in Lagos State and a commitment to the integration of the TPU within the Local Government Administration and structure.

3.1.5.2 FINDINGS ON THE TRANSPORT PLANNING UNITS.

The TPUs are set up to achieve the following objectives:

- To ensure mobility on the secondary and tertiary LG Roads especially those serving as feeder Roads to the BRT – lite mass transit Corridor.
- To evolve LGA/LCDA parking policy and prevent uncontrolled parking along the BRT Corridor, including construction of illegal structures and street trading which will interfere with traffic on the main corridor.
- To evolve a local transport master plan which will be in tandem or dove – tail into the state strategic master plan.
- To practice and establish the use of TMS and other traffic measures to decongest traffic black sport on the secondary and tertiary Local Government Roads.
- To generally increase the network efficiency of the road network in the local Government or LCDA.

LAMATA prescribed that a TPU shall have the following number and cadre of staff:

(a) Experienced Senior Transport Planner.
(b) A Traffic Manager/Officer
(c) Two qualified/experience Transport/Traffic Manager Supervisors
(d) 6 to 7 Transport/Traffic officers.

During fieldwork the Consultants the three LGAs (Lagos Island, Kosofe and Ikorodu) and interviewed staff of the TPUs and the following are the findings:

- There are 6 TPUs which have been established pursuant to the LUTP2.
- While the Lagos Island and Ikorodu LGAs have TPUs in the LGAs as well as having one each in an LCDA within their LGA, Kosofe LGA has no TPU but there are 2 TPUs in LCDAs within the LGA.
- The Ikosi Isheri LCDA TPU within Kosofe LGA cannot be said to be functioning even though it has clearly been established. The TPU has a staff strength of 3 with Mr Semiu Oyesiji, a senior administrative officer of the LCDA as the head. The latter replaced Mr Lemo Olarewaju Ayodeji who was recruited by the Consultant to LAMATA on establishment of TPUs (Planet Project) and was trained for the purpose of working in TPU. Mr Lemo was transferred to another LGA which has no TPU. The TPU is being funded by the LCDA but the unit is only being used in the maintenance of the LCDA vehicle Fleet. The transfer of Mr Lemo is a waste of resources and capacity because he was recruited and trained specifically for the purpose of working in Transport Planning. All the expertise he acquired has gone to waste.
- The Agboyi ketu LCDA TPU also within the Kosofe LGA has a functioning with a staff strength of 3, headed by Mr Lanre Ogunbekun who is designated Transport Officer – a senior administrative officer of the LCDA. Although 2 staff members were trained for this Unit only one remains at the TPU, the second trained staff having been transferred to another LCDA. The TPU has been having challenges in its functions because od paucity of funding from the LCDA. Despite this, the TPU has

to its credit some traffic improvement proposals which have been presented to the LCDA. One of such is he lane marking of Agboyi Road such that parking will only be allowed on one side of the Road, thus improving mobility on this important feeder road which is the only exit for people living in Agboyi Island. This proposal is still awaiting the approval of the LCDA.

- The full details of the profiles of the TPUs are contained in the table below:

TABLE 12: PROFILE OF TPUS

INDICATORS	KOSOFE LGA		IKORODU LGA		LAGOS ISLAND LGA	
	IKOSI ISHERI LCDA	AGBOYI KETU LCDA	IKORODU WEST LCDA	IKORODU CENTRAL LCDA	LAGOS ISLAND EAST LCDA	LAGOS ISLAND WEST LCDA
Name of TPU Officer	Oyesiji Semiu	Lanre Ogunbekun	Sofile Olalekan Sunday	Fanilat Ajose	Taiwo Omotayo Olufemi	Adewale Yusuf
Position	Senior Administrative Officer	Transport Officer	Transport Officer	Assistant Transport Officer	Transport Officer	Transport Officer
Staff Strength	3	3	1	2	4	5
Number of Present Trained Staff	0	1	1	1	0	2
Details of Staff specifically trained for LGAs	•Lemo Ayodeji •Ismail Adedayo• Bolu Akinwale		•A. O. Kazeem •Olufunke Bankole• Sunday Sofile		•Adewale Yusuf•M.O. Tiamiyu•A. Abdul-Akeem	
Projects since Inception	Nil	Lanes Marking Proposal	Erection of Road Signs	Nil	• Proposed Pedestrian Crossing on Broad Street • Packing Lot at Epetedo Area	Management of Marina Car Park
Transport Master Plan	None	Draft Proposal	None	None	None	None
Packing Policy	None	None	Proposal awaiting Approval	N/A	Yes	Yes
Traffic Enforcement Section	All TPUs Enforcement Sections are not effectively functioning as they have either been banned or disbanded or their activities restricted by Lagos State Government.					
Sustainability	Findings show that sustainability is at risk in the operations of the TPUs. The issues around this are discussed in details below.					
Funding	LCDA	Nil	Nil	-	LCDA	LCDA

- The TPU in Ikorodu West LCDA within Ikorodu LGU has Olalekan Sofile as the head. He was recruited and trained for the TPU and his designation is Transport Officer. He is the only staff in the TPU and the TPU has been struggling to function. With inadequate staff and resources the unit has only been able to embark on road signs and street naming. A major parking and revenue generating proposal made was the use of about 3 hectares of available land at the LCDA premises for park and ride facility. The LCDA premises is located along the Mile12 - Ikorodu BRT Corridor and not far from Agric Bus Terminus of the BRT. The proposal is to develop the 3 hectares of land as parking lot for car owners wishing to travel by BRT to Mile12, Ketu, Fadeyi and TBS Lagos. This proposal is still to be approved by the LCDA.
- TPUs at present are challenged on existential issues and have not even begun to battle performance issues, meanwhile the performance is what will benefit the overall objective of LAMATA as it relates to traffic decongestion, bus feeder systems, bus route network etc. The TPUs are crucial to attaining improvement of mobility on the feeder roads. Survey findings show that 79% of respondents confirmed having to travel for more than two kilometres and through inordinate delays to access the BRT Terminals or Bus Stations. The sooner the existential issues are addressed the sooner the TPUs can begin to function with some effectiveness.

3.1.5.3 CHALLENGES AND CONSTRAINTS OF THE TPU$_S$

- There is inadequate staffing of all the TPUs and the present staff, save the heads in some instances are not qualified or experienced. Despite the recruitment and training of staff for the TPUs the intention of retention of cognate capacity is defeated by the un-informed decision to transfer these trained staff out of the LGA/LCDA that can utilize their special skills to other LGA/LCDA that can not so do.
- There appears to exist an overlap of duties within the LGA because there is still the existing Transport Unit (TU) in the LGAs and this is under works and infrastructure of the LGA and there is a supervisory Councilor, thus there is a conflicts zone which is militating against efficiency of the TPU.
- There is ambivalence around the ownership or institutional legitimacy of the TPU. While the LGA/LCDAs see the TPUs as belonging to LAMATA, the latter created them to belong to the LGA/LCDAs. While this ambivalence persists, the TPUs' very existence and effectiveness will remain in jeopardy. LAMATA had envisaged that the LGA/LCDAs would integrate the TPUs into their LGA structure in order to get the full benefits of the trained officers in transportation policies and decision making. It was also expected that the trained officers will be the nucleus for training others in the TPU. However, this aim was defeated by the frequent transfer of these officers away from the target Local Governments.
- Funding is a major constraint because a sustainable funding structure has not been institutionalized. By this is meant that the LGA/LCDA due to misunderstanding of the ownership, objectives and purpose of the TPU.
- The Local Government Service Commission does not appear to be working in concert with LAMATA in regard to the staffing of TPUs as the Commission keeps transferring staff specifically recruited for the TPUs out of the LGA/LCDA they are specifically deployed to. There is a lacuna in communication in this development.
- Part of sustainability is in ensuring that equipment and other office materials that were purchased specifically for the TPU offices should not to be taken away by higher authorities for use in offices other than the TPU offices. In a few of the TPUs this was the situation, and the helplessness of the

TPU staff who are often lower on the hierarchy of leadership is defeating and hinders the efficiency and effectiveness of the unit.

- Lack of support and cooperation from the council Executives or the LGA Chairmen in respect of the TPUs.
- There is also absence of routine and periodic maintenance of the TPU office equipment (Air conditioner, Printers etc.).

3.1.5.4 LESSONS LEARNED

- Prior to setting up a special unit in any institution it is advisable to examine if there exist any departments that seems to have a semblance of similarity in functions to the new special unit being proposed. If such exist, then there must be either an abrogation or scrap of such existing unit or a merger of the two units. Where parallel units exist the survival of one is dicey.
- Although it is not certain that the Local Government Service Commission was not contacted or consulted prior to the creation of the TPUs, it is however important to stress that Stakeholder analysis at the beginning of any initiative must be thorough to include even those whose only function may be adjudged even remote. In this wise, the Local Government Service Commission was perhaps left out and the action of the latter has impacted adversely on a carefully thought out and laudable project. The Commission is responsible for all the LGA/ LCDA workers throughout the State and the transfer of the staff from one LGA/LCDA to another is a normal function. Consultation with this commission will stem the frequent transfer of trained officers to LGA/LCDA where TPU is none existent.
- For projects to actually endure in the LGA/LCDA, the Chairman of all the 57 LGA/LCDAs in the State should be sensitized and engaged in a determined manner until they are totally bought into the project. Even if the TPUs would only first have a 10% penetration at the onset, the buy-in of all the 57 Chairmen will give institutional acceptance of project and the first set would feel special to have been selected while the remainder will eagerly wait for their turn. LGA/LCDAs have their special functions especially as regards feeder roads and there should be no reason for them to sabotage the efforts of LAMATA if they understand the overall objective of the project. LAMATA should also keep in mind the politicking that underscores LGA/LCDAs and help in securing legitimacy for revenue base that by law accrues to the LGA/LCDAs. Resistance comes if persons fear erosion of their revenue base. Prompt cooperation and support for the TPUs from Local Government Executives should be enjoyed by members of the TPU and should not be seen as competitors.
- A sustainable plan requires a dedicated funding line and the line should be from the LGA/LCDA. LAMATA should institutionalize the The TPU's funding line within the LGA/LCDA.

3.1.5.5 RECOMMENDATIONS

- Consolidate the gains of the establishment of the TPUs in the 6 LGA/LCDAs by addressing law or regulations to solve the issues of legitimacy and sustainability such as removing parallel functionaries and institutionalizing just the TPU.
- Empower the TPU to be sustainable by providing a secure and regular funding line from the LGA/LCDA. A budget should be made in the LGA/LCDA annually for the TPU. In this wise it is recommended that the TPU should be made a department at the Local Government Councils with full rights and privileges of a full government functionary, operating a budget of their very own, and have financial semi-autonomy as it is with other arms of the Local Government. In the mean

time before a full departmental status is granted, the TPUs should be given an Imprest fund for small items of expenditure and day to day expenses which fund can and restored to a fixed amount periodically.

- Staffing of TPUs must be given special status and the Local Government Commission should be instructed by the LASG through the appropriate legal channels that specialised staff must be retained within or transferred only to the LGA/LCDAs that can use their expertise.
- Foster cooperation and support for TPU from the local council executives by conducting Inter LGA/LCDA stakeholder Workshops for dissemination of TPU activities and feedback so that best practices can be shared.

3.1.6 SUPPORT TO KANO (COMPONENT 1F)

The fact that LAMATA has credibility in transportation policy enunciation, planning, and implementation of projects has stood the agency in good stead in being asked to supervise and coordinate the development of transportation capacity of Kano State of Nigeria. The credibility of LAMATA in the sector is due in the main to the successful implementation of the LUTP 1 between 2007-2010. Sub-component 1F gives LAMATA the role of Consultant to the Kano State Government (KSG) in the development of a Kano State Urban Transport Planning for the state which has an estimated population of 10 million people and which like Lagos State before the LUTPs has a transport system "characterized by insufficient and poorly managed and regulated services and infrastructure" and particularly as system of planning not driven by robust data, for example the state government was desirous of developing a rail system without data to confirm or otherwise that this was the most needed or pragmatic approach to solving the immediate, middle or long-term problems of the sector. Sub-component 1F was thus a component that focused mainly on studies to determine issues around the transport sector and to engage stakeholder in robust interaction so as to define the way forward. The total funding for this sub-component was $1M GEF funds.

The activities under the subcomponent are evaluated below:

3.1.6.1 CONSULTANCY SERVICE FOR ALTERNATIVE ANALYSIS STUDY OF INTERVENTIONS TO ADDRESS CONGESTION ALONG MUHAMMED MURTALA WAY KANO

OBJECTIVE AND SCOPE OF STUDY

The objective of the study was to recommend a justifiable solution to decongest the traffic gridlock on the Murtala Mohammed Way (MMW), Kano. The MMW is the nucleus of the city of Kano being the main road in the city centre and having many intersections with roads leading to the other areas of the city. The corridor is approximately 6.1Km. Although over the years Kano city had developed a decent road network with dual carriageways that provide access from the outskirts to the central area, the accessibility to the city centre suffer gridlock negating any gains from the the road network. Thus better traffic management was required to address the growing traffic congestion. In an earlier study –the Kano Travel Demand Survey (KTDS) which was carried out in 2012 for the Kano Urban Transport Office (KUTPO) by the Nigeria Infrastructure Facility (NIAF), the findings were that travel demand within metropolitan Kano is characterised by significant informal transport sector that bridge the transport provision gap which the formal transport sector had left opened. The informal sector were basically the achabas (okadas/motor cycles), danfos, taxis and three-wheelers (rickshaws) and they were as in 2012 fulfilling an unmet passenger demand of 83,563 inbound passenger movements and 88,277 outbound passenger movements per day

(06:00-19:00) along a segment of the Murtala Mohammed Way that is particularly congested. Nearly 200,000 bikes are on the roads daily. Urban transport services are insufficient. Achabas were banned in February 2013 but the ban caused a rise in demand for other modes. Proposed improvements to the transport situation in the City include: the introduction of a fly over along MMW to alleviate congestion; a light rail transit that can pass through the Central Business District (CBD); road constructions such as parking and bus stop improvements; and urban bus transit services.

In recognition of the compelling need to decongest the CBD to allow for intersecting bus routes, interchange and ease of access to the CBD, the Kano State Government (KSG) decided that an intervention was imperative on the MMW through Katsina Road and in order to aid informed decision making, the KSG decided to seek an objective analysis of the issues around the MMW congestion and a preferment of choice of solutions. It was also important that stakeholders accept whatever final option that the Government would select thus they were to be part of finding the solution. Another reason for commissioning the study on Alternative Mass Transit Analysis was to give the Government the cost implications of the alternative solutions that would be proffered as this would mean that large investments are avoided where they are not necessary and that under-investments did not occur where larger investments were compelling.

Key requirements of the study that would ensure that the overall objective was met were central to the study approach:

- A rigorous alternatives identification exercise
- A comprehensive evaluation framework that embraces all impacts material to decision making
- Robust forecasting of these impacts, including the explicit recognition of uncertainties in forecasts
- The effective engagement of key stakeholders in all the above study processes
- Clarity and transparency in the reporting of study outputs to facilitate that effective stakeholder engagement

STUDY METHODOLOGY AND FINDINGS

The Consultants' methodology was the norm for studies such as the one they conducted; they were guided by primary data obtained from their field surveys and based on instruments which had been prepared after they had conducted a thorough desk review of secondary data on traffic variation and characteristics. The primary survey involved Manual classified counts, Road side interviews (RSIs), public transport passenger surveys- At Stop Interviews (ASI). LAMATA supervised the procurement and implementation processes for the study and provided backstopping to the KUTPO.

The salient survey findings are as follows:

- Travel Data was obtained from a sample size of approximately 2,000 combined RSIs and public transport passenger surveys (ASI) were collected. RSIs of vehicle drives were conducted at 3 of the Manual Classified Counts (MCC) survey stations and ASI took place at 3 key bus stops and interchanges along the corridor to provide basic trip data, comparable to that of the road side interviews. MCC were conducted at 8 locations during weekdays and weekends between 07:00 and 19:00 hours to determine the number, direction of travel, and classifications of vehicles at the selected survey stations along MMW.

- The data was then analysed to observe the volume of cars in a particular area, at a specific time. Along the MMW corridor, the most popular modes of transport across weekdays and weekends were as follows; Keke Napeps, Achabas, Cars, Danfo, Buses, Taxi, Medium Goods, Lorry & Taxi.
- Roadside Interviews surveys collected basic trip information from drivers of private and commercial vehicles driving on MMW. Data collected covered origin, destination, trip purpose, household income and basic demographic data. Interviews lasted approximately 2 minutes and 864 RSI were collected. The data indicated that most people using the road networks were self-employed. Personnel interviews indicated that 45% earned less than 21,000 naira per month. The data showed that driver and passenger demand is greatest along roads including MMW, Katsina Road, Ibrahim Taiwo Road and Zaria Road.
- ASI with public transport passengers took place at Bata, Yankure and Fagge bus stops along the MMW. Passengers were asked about the nature of access / egress from bus stop to provide information on the length and frequency of trips. Over 1,074 ASI data were collected. 76% of public transport passengers were male and 24% were female and over 35% of trips were made for business reasons. Observations of the transport interchanges surveyed shows that better traffic management is required to address the growing traffic congestion contributed by public transport vehicles at all bus stops and by disorganised market traders.
- Corridor Alternatives were contained in the Kano Transport Master Plan which recommended concessionary routes in the city -Maiduguri-Wudil Road to Mallam Kato Square; Yankaba to Bata/Mallam Kato Square ; Dawanau to Mil Tara to Yankura; BUK New Site/Janguza to Yankura; Mallam Kato to Kabuga Rd; Sa'adatu to Rimi College/Zaria Road to Mallam Kato Square. Due to the congested nature of the roads through Old Kano City, the roads in this area were found not appropriate for operating high-capacity bus services. As such the routes listed above do not go through the Old City.
- The NIAF proposes Bus Mass Transit lines to improve movement to and for the CBD. Proposed plans included the introduction of bus lanes, bus shelters, clearing of street markets and more. There were plans to introduce multi-story off-street car parks. The objectives of traffic management strategy were to reduce travel time along the corridor, reduce the possibility of accidents, promote public transport usage, improve parking access for those using private transport and to improve pedestrian crossing facilities.
- Corridor Analysis and Evaluation was undertaken using Synchro at the 9 key junctions along the MMW route. Synchro is a macroscopic analysis and optimization software application for signalized intersections and roundabouts that uses the Intersection Capacity Utilization method for determining intersection capacity. The traffic data collected along the approximately 4.1km long section of MMW had been used as the basis for the formulation of traffic assessment options for the corridor.
- The average 5-day and 7-day traffic flow for each vehicle class was computed for each direction at every survey location and the peak hour flow identified for that location. The traffic data was then converted to passenger car units (pcu) and the total focus for each hour computed to enable its use in the traffic model. This assessment revealed that the peak hours for the study network is generally around 10:00 – 11:00 hours in the morning peak period and 17:00 – 18:00 hours in the evening peak period

After data analysis was completed the Consultants proffered 4 data-driven options for decongesting the MMW, Kano. The 4th Option was actually Option 3 which was fine-tuned at the Stakeholder-engagement

Meeting. The 4 different options were based on a traffic management strategy developed for the corridor to ensure that:

a) Parking is controlled effectively;
b) Junctions are upgraded to improve traffic movement;
c) Efficient enforcement strategies are put in place;
d) Traffic management measures are used to ensure road space including pedestrian facilities are adequately managed and used effectively

The summary of the factors considered for the 4 options are contained in the following Table 8

TABLE 13: SUMMARY OF PROPOSED IMPROVEMENTS TO CORRIDOR OPTION ALTERNATIVES (SOURCE: ALTERNATIVE ANALYSIS STUDY)

CATEGORY	ENFORCEMENT		TRAFFIC MANAGEMENT SYSTEM				SIGNAGE	PAVEMENT		TRANSPORT FACILITIES						
Type of Improvement	Clearing street hawkers / traders	Parking controls	Junction Signalisation	One way system	Urban Traffic Management Centre (UTMC)	Freight management restrictions	New traffic signs to support all measures	Road Pavement Improvement	Junction Improvement	kerbside parking & Taxi Ranks	multi-storey car park	Bus stops with shelters etc.	Freight Terminus	At-grade Pedestrian Crossings	Pedestrian Bridge / Underpass	Non-Motorised Transport Lane
unit	*Yes / No*	*Yes / No*	*Nos*	*Yes / No*	*Yes / No*	*Yes / No*	*Yes / No*	*km*	*Nos*	*km*	*nos*	*nos*	*nos*	*nos*	*nos*	*km*
OPTION 1	Yes	Yes	8	Yes	Yes	Yes	Yes	2.9	8	2.0	2	6	-	3	-	-
OPTION 2	Yes	Yes	7	Yes	No	Yes	Yes	2.8	7	1.2	2	6	-	3	-	-
OPTION 3	No	Yes	7	No	No	Yes	Yes	6.2	7	3.2	3	6	-	3	-	-
OPTION 4	Yes	No	7	No	No	No	Yes	3.8	7	1.9	3	6	2	-	1	3.0

The measures of effectiveness used to assess the four options focused on comparing; travel time (minutes); travel speed (km/hour); average delay per vehicle (seconds); fuel economy (km/litres). Estimation was made as to the costing of each of the four options. The costs ranges from 4 to 6 Billion Naira with option 4 being the most expensive on paper. Multi-criteria analysis holistically looked at the benefit and costs associated with each option. Stakeholder engagement allowed for further refinement of ideas. The study also highlighted four modes of delivery options which include service contracts, management contracts, design build operate maintain (DBOM) and concession.

The Consultants recommended Option 4 based on the data collected as the most beneficial option for improvement of results. The Corridor evaluation was based on comparing the four options first mentioned alongside the exiting condition (i.e. no changes) and the existing condition with the addition of a flyover. This made a total of six scenarios. The evaluation appraised the level of traffic congestion and traffic flow on MMW by comparing all the scenarios using the following measures of effectiveness (more) from the results of the SYNCHRO analysis:

- Travel time (minutes);
- Travel speed (km/hour);
- Av. Delay / Vehicle (seconds); and,
- Fuel Economy (km/litres).

The traffic analysis of the four (4) corridor concept options indicate that on average, travel speed along MMW corridor will improve to 36 km/h, 42 km/h and 38 km/h for Option 1, 2, 3 and 4 respectively. In terms of fuel economy, all the 4 options will also require less fuel to travel along the study corridor when compared to existing and flyover scenarios. All options have their merits where improvements to the key junctions and especially those that are at each end of the ongoing flyover are made. Thus these options show much improved travel efficiency when compared to the flyover and the existing scenario.

The costs of options were taken based on enforcement, traffic management, pavement/highway works, signage, facilities, and removal of structures and utility relocation. Cost estimates were derived from recent relevant data from various sources including: the NIAF Preliminary Cost Estimates and LAMATA Bus Projects,

The Alternatives set out had a Multi-Criteria Analysis (MCA) approach applied to them; and were complemented by a more formal Balanced Score Card (BSC) analysis. The advantage of the MCA is that it can be used to highlight both key strengths and key weaknesses of any particular Option and mitigate against those shortcomings. The MCA consider financial factors, economic factors and factors pertaining to smoothness of traffic flow, environmental factors, institutional factors, alignment with NIAF proposals and impact on existing MMW users.

The Balanced Score Card was used to draw conclusions over the MCA in the following ways; Firstly, each criterion is assigned a weighting equivalent to its relative importance; and Secondly, each Option (including the "Do Nothing" or "Do Minimum") is assigned a score against each criterion, thirdly, each Option can then be scored with the score comprising the product of the criterion weighting and the respective Option's score against that criterion. The results reflect that across the categories in bold, 68% of people questioned envision positive outcomes from the plans and only 32% anticipate negative outcomes from the plans. The following Table 9 is sourced from the Alternative Analysis Study. Based on the weighted scores by category, as can be seen in the Table, Option 1 is the second-best scenario. Option 4, which was introduced following the Stakeholder workshop, is the most expensive option and so ranks bottom against financial criteria, but second highest against economic and environmental criteria and top for user and NIAF compliance criteria. Option 4 ranks highest overall.

The Stakeholders involved in lending their voices to the alternatives included Ministry of Land and Physical Planning, Ministry of Works, and many others. On Monday 12th January 2015, the first stakeholder meeting was held at Kano Urban Transport Project Office (KUPTO). After division into groups, Option 3 was heavily scrutinised and an alternative new Option 4 was developed based on the recommendations of the stakeholders. The Recommendations for addressing congestion included providing additional lanes on the most congested roads, preparing new routes and shelters for modern buses to ensure higher passenger occupancy, establishing traffic management offices with adequate manpower and equipment and improving road signs and other demarcations.

TABLE 14: WEIGHTED SCORE BY CATEGORY. SOURCE ALTERNATIVES ANALYSIS STDY

Category		Do Minimum	Option 1	Option 2	Option 3	Option 4
Financial	Score	25	8	10	2	0
	Ranking	1	3	2	4	5
Economic	Score	0	14	17	23	22
	Ranking	5	4	3	1	2
Environmental	Score	0	10	9	10	10
	Ranking	5	3	4	1	2
Institutional	Score	5	5	0	3	3
	Ranking	1	1	5	3	3
User	Score	2	8	5	13	19
	Ranking	5	3	4	2	1
NIAF	Score	0	3	3	6	11
	Ranking	5	3	3	2	1
Overall	Score	32	48	44	56	64
	Ranking	5	3	4	2	1

CONCLUSIONS AND RECOMMENDATIONS

The study conclusions are as follows:

As previously identified in this summary, the preferred alternative solution for decongesting MMW corridor is Option 4 concept which as can be seen in Table 10 below is the most expensive but it scores high in traffic and includes several environmentally friendly and sustainable solutions such as lanes for Non-Motorised Transport (NMT), Clearing Hawkers, Freight Parking, Bus Stops and Pedestrian Zones which makes it stand out.

SUMMARY	OPTION 1	OPTION 2	OPTION 3	OPTION 4
1.0 ENFORCEMENT	9,000,000.00	9,000,000.00	4,500,000.00	4,500,000.00
2.0 TRAFFIC MANAGEMENT SYSTEM	10,260,000.00	10,260,000.00	4,790,000.00	70,000,000.00
3.0 SIGNAGE	14,080,000.00	14,080,000.00	9,600,000.00	9,600,000.00
4.0 PAVEMENT	1,044,500,000.00	906,000,000.00	1,525,000,000.00	916,000,000.00
5.0 FACILITIES	2,789,640,000.00	2,487,090,000.00	3,768,090,000.00	4,737,975,000.00
6.0 STRUCTURES & UTILITIES	251,386,200.00	222,717,950.00	345,278,700.00	372,974,875.00
SUB-TOTAL	4,118,866,200.00	3,649,147,950.00	5,657,258,700.00	6,111,049,875.00
ADD				
PRELIMINARIES @ 2.5%	102,971,655.00	91,228,698.75	141,431,467.50	152,776,246.88
Contractor (40%)	*41,188,662.00*	*36,491,479.50*	*56,572,587.00*	*61,110,498.75*
Ministry of Housing (60%)	*61,782,993.00*	*54,737,219.25*	*84,858,880.50*	*91,665,748.13*
SUB-TOTAL	4,221,837,855.00	3,740,376,648.75	5,798,690,167.50	6,263,826,121.88
CONTINGENCY @ 5%	211,091,892.75	187,018,832.44	289,934,508.38	313,191,306.09
V.A.T @ 5%	211,091,892.75	187,018,832.44	289,934,508.38	313,191,306.09
FINAL TOTAL	4,644,021,640.50	4,114,414,313.63	6,378,559,184.25	6,890,208,734.06

The study also further made the following recommendations to actualise and effect the implementation of the identified improvements in the corridor option 4 concept alternative:

- That the Report be adopted by KSG as a blue print for the solution for decongesting MMW, Kano.
- The corridor option 4 concept should be advanced to preliminary engineering stage where more detailed evaluation and design studies can be conducted. This will include engineering surveys to help establish the various locations of all the improvements that have been recommended as part of corridor option 4 concept.
- Further investigation on the potential 'feasible' options for PSP (private sector participation) as indicated and recommended should be undertaken.

OVERALL ASSESSMENT OF THE ALTERNATIVE ANALYSIS STUDY ON MMW, KANO

Objective of Alternatives Analysis Study	Assessment of Achievement of Objectives	Link of objective to Overall Development Objective	Lessons Learned
An alternative analysis process that will provide KSG evidence-based options on alternative transport interventions to cause a reconsideration of plans by the latter to develop 21/2 elevated structure and light rail line along MMW, Kano through Katsina Road Corridor as a congestion alleviation scheme.	Objectives achieved through: • Desk study • Field survey employing instruments of traffic manual counts, RSIs, ASIs and Stakeholder meetings • 4 Options provided as viable alternatives to the light rail line. • Option 4 scored the highest overall marks in the matrix of assessment and is the preferred and recommended option by all Stakeholders despite being the highest priced. • Option 4 provide a holistic solution and incorporates concepts of sustainability such as considerations of freight parking, pedestrian zones, bus stops, etc.	• Sustainable transport systems in Kano relates to the GEF overall objectives and Option 4 achieves this • The results of the study will make for informed decision-making by the KSG. • Traffic flow improvements and congestion reduction parameters were balanced against factors such as cost, environmental impacts, pedestrian safety etc. • Recommendations which relate to potential and viable sources of funding from a public-private partnership concurs with contemporary models of private sector-led sustainable development.	• Stakeholder engagement in project conception and development is crucial and a key success factor in driving stakeholder buy-in and ownership of project • Stakeholders when properly engaged are useful tools to fine-tune project ideas and design. • In this case stakeholder engagement resulted in a refinement of the preferred option leading to the suggestion and recommendation of more environmentally and user friendly and sustainable solution for decongesting MMW.

3.1.6.2 CONSULTANCY SERVICE FOR INVESTIGATING THE IMPACT OF MOTORCYCLE AND 3 WHEELERS GROWTH IN AFRICA (A CASE STUDY OF KANO)

OBJECTIVES AND SCOPE OF STUDY

The objectives of the study were to provide a comprehensive picture of how 2 (motorcycle) and 3 wheelers (tricycles) function in Kano in terms of supply, demand, operations, and to investigate economic and social factors that either constrain or promote their use. The study looked at the impact of both vehicles on traffic management, road congestion, safety and pollution among others and examined the policies that are available or unavailable to manage the growth in use of the two vehicles. The study also sought to elicit perception of the public of both forms of transport and to better understand the desire by people in Kano to own motorbikes and/or to ride them as transportation modes; advance policies to improve road safety and evaluate policies to phase out the use of two stroke engines for more environmentally friendly engines such as four stroke engines.

The study's overall scope spanned the following:

- Examine supply and demand characteristics of the motorcycle taxis and 3-wheelers;
- Understand how these industries are structured, and develop profiles of those individuals who own the vehicle, those who operate them, and those involved in their sale and repair;
- Examine service characteristics (including impact on road congestion, traffic management, road safety, environment) of both types of vehicles;
- Help the Ministry of Works, Housing, and Transport consider and evaluate options for managing the growth of m/cycle taxis, including regulation of m/cycle and their riders;
- Investigate people's perception of using two and three wheeler vehicles as public transport
- Carry out questionnaire survey and focus group interviews to determine what key characteristics appear to govern the desire to own and run a motorcycle as public transport.
- Help the Ministry of Works, Housing, and Transport consider and evaluate options for phasing out the use of 2-stroke engines, in favor of a more environmentally responsible alternative;
- Investigate road safety aspects of motorcycle and 3-wheeler operation, and identify possible measures that would improve safety

STUDY METHODOLOGY AND FINDINGS

- Two different types of questionnaires were administered on two categories of respondents, namely; operators and commuters. The operator's questionnaire was administered on the commercial 2 and 3-wheeler owners and/or drivers who were bona fide members of Association of Commercial Motorcycle Operators Association of Nigeria (ACOMORAN) Kano Chapter; and the second questionnaire was administered on the commuters of the 2 and 3-Wheelers in Kano Metropolis. The operator's questionnaire comprised of questions on the operators' socio-economic background, perception on commercial 2-wheeler operations in Kano, challenges of the business, industry-derived incentives; and suggestions for a safer and better regulated 2 and 3-wheeler commercial operation in Kano. The commuters' questionnaire contained questions on reasons for using 2 and 3-wheeler, journey purpose, fare structures, safety challenges, social status of commuters among others. The questionnaire was administered randomly on commuters at selected 2 and 3-wheeler parks across Kano Metropolis.
- Cultural and religious beliefs made it difficult to collect data from certain groups. A high level of illiteracy also increased the number of incorrectly filled questionnaires. Of the 1600 commuter questionnaires administered, only 455 commuter questionnaires were correctly filled and so formed the sample size of the commuters in the study. The sample size represents approximately 0.5% of the population in the metropolitan area, which falls below generally accepted sample size. To compensate for the small sample size, secondary data was obtained from other agencies like KUPTO and Kano State Ministry of Environment
- Supply characteristics showed that prominent brands of motorcycles used in Kano are Jincheng, Vespa and Linfang. Bajaj and Piaggio brands account for a larger percentage of 3-wheeler used in the Metropolis. Factors influencing purchase include, price, engine and warranty. A survey of sellers showed that the cost of a brand new two stroke engine is between N70,000 and N90,000 whereas a four stroke engine is between N107,000 and N110,000. A brand new three wheeler costs about N400,000.
- By sheer numbers, 2 and 3 wheelers make up nearly 60% of the on-road vehicles per week. The factors influencing supply of 2 and 3 wheeler vehicles in Kano are social, political and economic.

Focus group data shows that the most contributory factor is unemployment. Politicians often gift out 3 wheelers to the youths as payment for loyal support during election campaigns. The rise is also driven by the rapid demand for transport services not met by the existing public transport services.

- The operators of the 2 and 3 wheeler vehicles have two separate trade unions in Kano: ACOMORAN; and Kano Amalgamated Tricycle Association (KATA). These interest groups' primary objective is protecting the interest and welfare of their members only. However, both registered and non-registered members are made to pay operational dues of N150 daily/per shift. There are three shifts of operation namely: morning, afternoon and evening shifts. Any member or non-member, who refuses to pay this due, will have his 2-wheeler seized by the union officials, who are appointed by the Union to collect the dues daily. The daily operational due collected by the union, is meant for the up keep of the officials and day to day running of the administration of the union. According to ACOMORAN estimates, there are 2.5 million registered and unregistered members.
- Also, the union leaders of Kano Amalgamated Tricycle Association (KATA) disclosed in an interview that 8,000 of their members are registered members while not less than 2,000 are unregistered. The total number of ACOMORAN and KATA registered and non-registered members are 3.5 million. Doing the calculation, if members work for half a shift, the union members make an astounding N262, 500,000.00 daily. Interestingly, the daily due collected by the Union is not taxed.
- Despite being more expensive than pubic buses, users prefer 3 wheelers for their speed and privacy. 90% of 3 wheeler passengers are female and 90% of 2 wheeler passengers are male. A standing rule of government under the Sharia law states that 2 or 3 wheeler operators are not allowed to carry male and female genders together. If both are to be carried in the 3 wheeler vehicle, they must not sit on the same seat. Hence, male occupants of 3-wheelers usually sit in the front seat and female occupants at the back. 60% of commuters are aged between age 18 and 37. Public servants and business traders are the most frequent users of 2 and 3 wheeler vehicles. Reasons for use of the vehicles include affordability, flexibility, safety, lack of other alternatives and speed. The greatest problems created by the vehicles include accidents, pollution, robbery overloading and drink driving.
- Although commuters feel that operators are rough and hostile to other road users many still give poor excuses for not wanting to make use of same. Respondents were split equally between those who wanted the vehicles banned owing to their negative health impact and those who didn't.
- The factors driving up demand for ownership of 2 and 3 wheeler- vehicles include purchase price that is low relative to public buses; ordinary people can buy them, maneuverability in traffic, better suited to congested roads, better fuel economy, lower tax, poor state of public transport, lower occupancy and more. Most journeys taken are headed to destinations like the home, work, office, shop and education.
- The statistics show that more married unemployed operate the two and three wheelers as a means to feed their family and that majority of operators are between ages 31 and 40. The surveys indicate that most vehicles are either self-owned or taken under hire purchase. Majority (83%) of the operators belong to an organised transport union. 64% of operators claim to have valid licences. 80% of operators do not take drugs to function but 15% do take drugs such as alcohol, and marijuana or other social drugs. Nearly all vehicle operators feel that riding will help improve their socio-economic situation. Logically, nearly all operators feel that the use of the vehicles have reduced poverty in Kano State.

- From the Focus Group Discussions (FGD), the general reception to 2 and 3 wheelers in Kano is positive as they have filled the supply side shortage in public transport. But, reckless driving by youthful and at often intoxicated operators leads to daily accidents.
- The indifference of law enforcement agents to dangerous driving of 2 and 3 wheeler operators adversely impacts on overall road safety. The law enforcement agents posited the view that behavioural problems such as drug addiction amongst operators is more to blame for the wide scale road dangers as opposed to aiding and abetting by corrupt law enforcement. Proposals to ban the vehicles from operation are yet to be approved for fear of social backlash. The chairman of ACOMORAN stated that some of their members have several dependents and driving is their sole income source; banning their activities would create poverty and even more crime.
- As part of the international best practices, presented by an expert from Colombia where use of 2 wheelers is rife, some of the suggestions considered for enhanced safety were; collaboration between government and the Unions; enforcement of use of crash helmet; scrapping of rickety 2 and 3-wheelers; provision of 2 and 3 wheelers lanes.
- Discussions with the Ministry of Transport and Works reveal that no regulations have been put in place by the KSG on the use of 2 and 3 wheelers in the state. Majority of the drivers/riders did not have licenses and majority drive under the influence of drugs. Records indicate a 29% increase in arrests of operators of motorbikes in Kano between 2009 and 2011. it is clear that the number of arrests is also growing each year for both types of vehicles.
- 2 and 3 wheelers emit substantial quantities of hydrocarbon (HCs), carbon monoxide (CO) and particulate matter (PM). Kano Metropolis is largely polluted by 2 and 3 wheeler traffic. The cumulative effects of an increased air coefficient on the environment is incomplete combustion of hydrocarbons and this has a negative effect on the environment resulting in depletion of the ozone layer; as a result, exposing the Kano Metropolis population to risk of cancers and increased ambient temperature in the community. In summary, those residing or doing business along the transport corridor are in danger of developing health problems such as asthma, cough and chronic obstructive pulmonary disease (COPD) such as chronic bronchitis and emphysema, chronic rhinitis, chronic pharyngitis, throat pain and Cancer of the lungs and skin.

CONCLUSIONS AND RECOMMENDATIONS

There is a pressing need for Government to play a greater regulatory role in Kano by undertaking activities such as measuring emissions of the vehicles and only allowing fuel efficient and functional machines on the roads to lower emissions. In addition, public transport initiatives such as new large capacity buses will lead to lower emissions per passenger. Following on from this car-pooling must be encouraged as a means to lowering the number of vehicles on the roads which saves travel time for everyone. It should also be made illegal to use old harmful engines. Finally, drivers of the vehicles should be taught how to drive safely and the introduction of demarcated lanes for these vehicles should lower the number of accidents.

Despite the benefits users gain in using 2 and 3 wheelers, the adverse effects of pollution, crime and road accidents mean that the KSG must give policies spelling out the *modus of operandi* of 2 and 3-Wheelers in Kano, with the view of squarely addressing the negative aspects of their operation. The Lagos Model of 2-Wheeler restriction on major highways is recommended as a tool for safer and more efficient integration of passengers from 2 and 3-Wheelers into the larger proposed public transport system in Kano Metropolis;

this approach will enable the 2 and 3-Wheelers vehicles, to act as feeders to the newly proposed public transport system in the Metropolis.

It should be noted that the government of Kano State banned the commercial 2-wheelers operation in Kano Metropolis. This was as a result of many issues ranging from safety, pollution and also, increasing rate of insecurity in the city by criminal groups using 2-wheelers. The ban came into effect on January 22nd 2013 after the Study had been concluded. There is a need for a study to examine the socio-economic impacts of the ban on the operators, as well as effects on their immediate families and the "coping strategies" being adopted by the 2 wheeler operators to earn a living since the ban by government. Also, alternative transport options need to be provided by the government to act as replacement for the banned 2-wheelers operation so as to offer commuters alternative options to move from point to point in an efficient and safe manner.

OVERALL ASSESSMENT OF THE CONSULTANCY SERVICE FOR INVESTIGATING THE IMPACT OF MOTORCYCLE AND 3 WHEELERS GROWTH IN AFRICA (A CASE STUDY OF KANO)

Table 15

Objective of Alternatives Analysis Study	Assessment of Achievement of Objectives	Link of objective to Overall Development Objective	Lessons Learned
To provide a detailed picture of how motorcycle taxis and 3- wheelers function in KANO, in terms of supply, demand, and operational aspects, economic and social factors that constrain or incentivize their use.	Objectives achieved by the findings of the study: • Deficit in supply of formal transportation such as buses incentivized the demand for 2 and 3 wheelers transport by users • There is willing acceptance by the public of these 2 and 3 wheelers as means of transport, negative impact such as environmental pollution, high accident rate, overloading, drunk-driving, and robbery not withstanding • Poverty alleviation appears to be a benefit of the 2 and 3 wheelers because owners and drivers/riders have large dependents on the income generated. • 2 and 3 wheelers have high accident rates	• An underpinning of the importance of more sustainable and efficient mass public transport system • The GEF overall objective is to reduce emissions and harmful environmental practices and the need to change from the 2, 3 stroke engines to 4 stroke engines was a key finding of the study because the latter is less harmful to people and to the environment. • The elderly and the children in Kano Metropolis, and those around the Kano Metropolis are in grave health risk of asthma, coughing and chronic obstructive pulmonary disease and cancer.	• KSG needs to develop and implement local transport plans in the metropolitan area to discourage the use of motorcycles and 3-wheelers. • Regulation and enforcement of regulations is critical to reduce accidents along the corridor and to stop drunk or drug induced lawlessness. • The need to introduce Government policies and framework to regulate transport fare structure and solve safety concerns on the road

3.1.6.3 PRE-FEASILBILTY AND CONCEPTUAL DESIGN OF TRANSPORT HUB/TERMINALS, BUS STOPS, PEDESTRIAN FACILITIES, TRAFFIC MANAGEMENT MEASURES, DEPOTS AND PARKING FACILITIES IN KANO.

The Final Report of the report on this study was not available for review so a review of the Progress Report was undertaken and the summary is as contained below:

- Kano state government has embarked on a massive highway expansion, development and construction programme with a major grade separated intersections in Metropolitan Kano (city of Kano). The Federal Government on the other hand has reached advanced stages of completion of a Railway line that connects Lagos to Kano. There is need to map out the various multi-modal transport facilities required to cater for the mobility needs both of ever-growing passenger numbers in the city in a sustainable manner as well as to support the various industries across the Metropolis.
- To Identify study areas, a draft Master plan exercise was undertaken in 2008, it recommended a route network of buses consisting of trunk and feeder services (local, express, and skip-stop services). Six corridors were identified for possible routes with emphasis on "Park and Ride" facilities, but these recommendations were based on little actual traffic data, with no travel demand data whatsoever, such as origin-destinations data. Recommendations from this master plan have not been implemented.
- The Kano State Government (KSA) has recently embarked on an agenda of transport reform with technical assistance from Nigeria Infrastructure Advisory Facility (NIAF). A number of transport related studies including comprehensive travel demand surveys were undertaken in Kano providing underlying data to support further transport planning initiatives. The study revealed that majority of the interstate trips made by trucks is between Kano and other parts of the country carrying mainly industrial finished products and agricultural products.
- The KSG has envisaged the provision of organized modern truck parking facilities with all the necessary basic amenities for truck drivers and other users on the highways. KSG has also received assistance from the World Bank in rationalizing its urban transport system through a global environment facility (GEF) grant. Towards this end, KSG is keen to use this GEF fund to undertake the present consultancy services.
- The Lagos and Kano State governments, through the FGN have received a grant from the Global Environment Facility (GEF) towards the cost of Lagos urban transport project (LUTP 11) for the development of public transport delivery capacity in Kano.
- Over the last 5 years, with the guidance of LAMATA, Lagos State has transformed its urban transport with the implementation of a BRT system with plans for a new rail system in the near future.
- The purpose of this consultancy is to propose a comprehensive system of transport hubs at terminal program for Kano city, identifying what the key terminals should be, location options and key features of their design, such as size, capacity necessary design features, and characteristics of their interface with the surrounding streets and transport network. In general, Kano city has a good road network and its radial structure of dual carriage ways provides easy access from the outskirts to the central area with current levels of traffic, while other primary and secondary routes have paved single carriage way roads in wide reservations.
- Urban transport services in Kano are provided entirely by informal and unregulated private sector operators, using small vehicles, hayas (minibuses carrying up to 15 passengers), shared saloon car taxis and achabas (motorcycles) carrying individual passengers, although the achabas are included here as public transport mode, they are no longer used for public transportations with the core corridors of metropolitan Kano, but are still been used on feeder routes.
- While each of these modes has a role to play in catering for low traffic volumes or serving low density residential areas or those with difficult access, they are unsuitable and inefficient for mass transport. There are no formal buses operating urban passenger services in Kano. There have

been limited services in the past, large buses operate into Kano on long distance intercity services. The hayas operates a fixed route controlled by the transport union. The majority of hayas are in old and poor condition and also badly driven. Typically, each vehicle waits in turn at the terminal until it has a full load of passengers before departing. Taxi also operates on fixed routes in a similar manner with the hayas.

- There are considerable number of taxis in Kano which cater for individual point to point journeys, including a number of taxis that are based at the airport and some hotels. Achabas have proliferated in recent years and have become a dominant public transport mode. KSG imposed a temporary ban on achabas on February 24th, 2013. The achaba ban has resulted in substantial unsatisfied demand which is presently been catered for by additional hayas, taxi, rather than by conventional buses. Achabas are no longer used in the urban feeder routes.
- The railway that runs south from the centre of the city is part of the existing single track, narrow gauge network that links Kano to Lagos via Zaria and Kaduna. The KSG has plans to build a light rail transit (LRT) system ion the Kano Metropolis. The major corridors will be served with several routes which terminate at the city center.
- Economic growth, rapid urbanization and increased mobility are fuelling demand for effective and efficient transport facilities in the Kano Metropolis. The lack of such facilities have over these years of rapid urbanization hindered the movement of people and goods within and across the Kano Metropolis.
- A transport hub also known as a transport interchange is a place where passengers and cargo are exchanged between vehicles or between transport modes. Public transport hub include: rail stations, BRT stations, etc. For private transport, the parking lot functions as a hub. There are three kinds of freight hubs: sea-road, sea-rail and road-rail. Specifications should consider the "build emissions" (embodied carbon) etc as it is fundamental that the project context should be clear on how it supports climate change adaptation and how it will mitigate and reduce the impact of a changing climate.
- Economic benefits of comparison projects will be understood and how improved local connectivity affect work journey times and inward investment. Other factors are reduction of noise, preservation of heritage, local character and natural landscape. Trees provide shade and cooling important to a sense of wellbeing. Transport facilities in the context of this study can be considered as physical features on a travel corridor that aid and facilitate mobility and support the transportation of persons or goods. Thus, for the purpose of this study, transport facilities include pedestrian facilities, bus stops and shelters, traffic management measures, parking facilities. Implementation of road map for the development of bus mass transit in Kano.
- In order to identify possible locations for transport hubs i.e. public transport interchanges and freight hubs, a number of factors will be considered using a SWOT framework, which categories such factors into internal (existing) strengths and weaknesses and external (or possible future) opportunities and threats. Strengths / Weakness Factors: Proximity to existing routes, Proximity to trip generators/attractors etc. Opportunity / Threats Factors: The extent (or lack) of traffic congestion in the location's surrounds, the extent of safe access for pedestrians to the location.
- The Multi-Criteria Analysis (MCA) would then be used as an extension of the SWOT analysis, using MCA will enable the various advantages and disadvantages of different potential hub locations to be identified. After the submission of this report, the consultant will conduct two types of data collection including: establishment of transport hub land area and traffic counts and surveys within

the vicinity of transport hubs. Once the four sites have been selected, they will each be appraised to establish how well they will perform in various aspects of their function.

A Consultant was appointed to review the support to Kano subcomponent and the summary of the review in form of lessons learned are contained in *Appendix 2*

3.2 COMPONENT TWO: IMPROVEMENT OF PUBLIC TRANSPORT INFRASTRUCTURE AND ENHANCEMENT OF TRAFFIC MANAGEMENT SYSTEMS

This component focuses on the development of Lagos' nascent Bus Rapid Transport (BRT) system the first corridor of which was developed during Lagos Urban Transport Project (LUTP)], investing in infrastructure and hardware for two additional corridors, safety and also seeking to attract potential users through a communications and media strategy, and enhancing the consultation process. The component would also finance updated traffic management arrangements along the project BRT corridors as part of the overall system operation, and include: (a) revised road signs, to provide a warning and directional instructions that relate to areas of interaction between BRT vehicles and other vehicles along the corridor. They would be strategically located along the BRT corridors to provide information, improve lane discipline, and where necessary provide signs to alert drivers of a potential conflict; (b) intersection control, signal improvements; (c) carriageway markings, lighting, pedestrian crossing points, footbridges, etc. Key investments include:

TABLE 16: COMPONENT 2

S/N	Original Sub- components details	Revisions
2.A	BRT infrastructure construction and supervision, including interchange and traffic management, and safety for corridor from Oshodi to Obalende by way of Mile 2. Funding is $120 IDA	Not implemented because the concession of roads from FGN to LASG have not been obtained.
2.B	BRT infrastructure construction and supervision, including interchange and traffic management and safety for corridor from Oshodi to Ikorodu by way of Mile-12 (extension of LUTP / BRT-Lite corridor). Funding is $100 AFD supplemented with IDA funds during project review.	• AFD funds became inadequate • Project was restructured to use some IDA funds to complement.
2.C	Mass Transit Alternative Analyses Studies. Funding is $3M IDA	None
2.D	Development of a background bus feeder system, stations and terminals, as a complement to BRT and urban rail investments. Funding is $10M IDA	Component was reviewed and restructured and the Ikeja Bus Terminal project was added to the component.
2.E	BRT consultation, communications and media strategy. Funding is $1.5M IDA	None
2.F	Upgrade and rationalize system operation. Funding is $2M GEF	None

3.2.1 SUB-COMPONENT 2.A: BRT INFRASTRUCTURE CONSTRUCTION AND SUPERVISION, INCLUDING INTERCHANGE AND TRAFFIC MANAGEMENT, AND SAFETY FOR CORRIDOR FROM OSHODI TO OBALENDE BY WAY OF MILE 2

Component 2A was not implemented and would be moved into LUTP3 if it eventually comes on stream. The challenges around implementation are that most of that corridor are within the Federal Government's road network and the FGN would have to cede the roads to LASG and presently that has not been achieved. There are presently active engagement LAMATA and the LASG with the FGN on this.

3.2.2 BRT INFRASTRUCTURE CONSTRUCTION AND SUPERVISION, INCLUDING INTERCHANGE AND TRAFFIC MANAGEMENT AND SAFETY FOR MILE-12 –IKORODU (EXTENSION OF LUTP / BRT-LITE CORRIDOR) (COMPONENT 2B)

Component 2B is an extension project of the BRT Lite of the LUTP1 which runs from CMS to Mile12 to Ikorodu Building on the BRT Lite success and the demand of the commuters, LAMATA initiated the feasibility studies of the extension of the BRT Route from Mile12 to Ikorodu in 2009 and it was thus included the in LUPT 2. By this the LUTP2 would construct the Mile 12-Ikorodu extension and thus link a mass population from the Ikorodu town and settlements along the road. The BRT lite having been adjudged successful and with mainly positive impacts such as reduction of cost of transportation especially for the poor households, savings on travel time, reduced waiting time at the bus stops, and a more comfortable mode of travel it was desired that these impacts would also be seen in the overall travel times from Ikorodu-CMS.

The status quo ante, the LUTP2 intervention for the Mile 12-Ikorodu road was a 2- lane dual carriageway. The road condition was deplorable and so was the traffic situation with commuters stranded on the road for inordinately long hours. Some sections also experienced submersion during the raining season as there was perennial flooding. The total road length was 12.9km length and had a width of 7.5 metres, with central median of 2m width. There were 9 bridges at different locations with multi cell box culverts in two locations and pipe culverts at other locations.

The LUTP 2 intervention was a total reconstruction of Mile12 – Ikorodu Road from the existing four lanes (2-lane dual carriageway) to a six lane Highway with the segregated BRT lanes running in the middle as against the CMS – Mile12 BRT dedicated lanes which runs on either side of the Road. The construction was segmented into three (3) parts as follows:

- Urban Section 1: Mile 12- Ajegunle
- Rural Section: Ajegunle - Majidun
- Urban Section 2: Majidun- Ikorodu Round About

The specific BRT infrastructure including interchange and traffic management and safety, facilities and road furniture to be developed under the subcomponent 2B are as follows:

(a) Construction/rehabilitation of carriageway (7.3 meters) to provide BRT lanes, based on median configuration
(b) Provision of segregation kerbing (two-way), carriageway markings,
(c) Traffic Management, signal control, stops, ITS
(d) BRT Ikorodu Interchange, bridges, pedestrian facilities
(e) BRT Depot
(f) Bus shelter and lay-bys
(g) Supervision

The contract period was 24 months from around October 2012 and the three sections were to be undertaken simultaneously. The supervision consultancy was also for the same period. The road construction was delivered to LAMATA/LASG in May 2015, a period of about 6 months behind schedule due to many factors.

The transport operations on the BRT extended corridor spanning Ikorodu to CMS was awarded under a franchise scheme to on a private sector company, Primero Transport Service Ltd. The company acquired a

fleet of 447 new BRT buses. The new buses are presently in operation, although the expected optimum number of buses in circulation has not been reached, they are quite comfortable and with functioning air-conditioners.

3.2.2.1 CONTRACT DETAILS

The contract for the three segments of the Mile 12-Ikorodu BRT extension was awarded as shown in the following Table 17

TABLE 17: DETAILS OF CONSTRUCTION CONTRACT

Road Sections	Details	Contractor	Consultancy (Supervision)
Urban Section 1: Mile 12-Ajegunle	The urban section 1 is from Mile 12 to Ajegunle a total length of 5.275km (Chainage 9 + 075 to14 + 350). The segment accommodates the median running BRT lanes (7m width along the BRT lane and 10m width at the BRT bus station locations) with bilateral bus stations configurations linked with pedestrian bridges for pedestrian access into the stations and newly reconstructed 2 lane (7.3m width each direction) for other traffic users.	China Civil Engineering Construction Corporation Nig Ltd. (CCECC)	Consortium: Steer Davies Gleave, WNL Development Solution, High Point Rendel and Advanced Engineering Consultants.
Rural Section: Ajegunle - Majidun	The intervention on this segment followed a a pattern similar to the urban section 1 as regards the the median running BRT lanes and the bilateral bus stations c, pedestrian bridges for pedestrian access into the stations and the 2 lane (7.3m width each direction) for other traffic users. The road lenth is 3.983km starting from Ajegunle to Majidun (Chainage14 + 350 to 18 + 333).	China Civil Engineering Construction Corporation Nig Ltd. (CCECC)	Consortium: Steer Davies Gleave, WNL Development Solution, High Point Rendel and Advanced Engineering Consultants.
Urban Section 2: Majidun-Ikorodu Round About	The road construction under this section will cover about 4.057km starting from Majidun to Ikorodu (Ch. 18+333 – Ch. 22+390).	China Civil Engineering Construction Corporation Nig Ltd. (CCECC)	Consortium: Steer Davies Gleave, WNL Development Solution, High Point Rendel and Advanced Engineering Consultants.

3.2.2.2 CONTRACT WORK SPECIFICATIONS

The following works were to be undertaken by the Contractor for each of the sections of the roads:

TABLE 18: BRT EXTENSION WORK SPECIFICATIONS

Section 1: Urban 1	Section 2: Rural	Section 3: Urban 2
• Provision of additional 2 traffic lane from Ch.9+450–Ch.14+350 • Rehabilitation of existing road between Ch.9+075–Ch.14+350 • Provision of street light from Ch. 9+075–Ch.14+350 • Provision of Longitudinal service ducts • Provision of transverse service ducts • Provision of lay byes • Extension of pipe and box culvert • Provision of concrete side drains from Ch.10+250–Ch.14+350.	• Provision of additional 2 traffic lane from Ch. 14 + 350 – 18 + 333 • Provision of street light Ch. 14 + 350 – 18 + 333 • Rehabilitation of existing road between Ch. 14+350 - 18+333 • Provision of Longitudinal service ducts • Provision of transverse service ducts • Provision of lay byes • Extension of pipe and box culvert • Provision of surfaced dressed shoulders • Repair of Bridges at Ch. 18 + 235	• Provision of additional 2 traffic lane from Ch. 18+333 – Ch. 22+390 • Rehabilitation of existing road between Ch. 18+333 – Ch. 22+390 • Provision of street lighting ducts from Ch. 18+333 – Ch. 22+390 • Provision of Longitudinal service ducts • Provision of transverse service ducts • Provision of lay byes • Extension of pipe and box culvert. • Provision of concrete side drains from Ch. 18+333 – Ch. 22+390.

• Reclamation of eroded embankment at Owode • Raising of road profile between Ch.13+588 and 14+474 • Provision of Two (2) lanes bridge at Ch. 13 + 588 • Provision of one (1) lane bridges at Ch.9+474, 9+714 and 10+235 • Provision of four cells box culvert at Ch.13+953 • Traffic System Management (TSM)	• Repair of 10 cells box Culvert at Ch. 14 + 734 • Provision of two (2) lanes bridges at Ch. 14 + 474 and 16 + 003 • Provision of One (1) lane Bridge at Ch. 15 + 459 and 18 + 205 • Traffic System Management (TSM)	• Relocation of the existing Ayangburen Market. • Construction of 6 No Classroom

3.2.2.3 ROAD CONDITION-BRT EXTENSION MILE 12-IKORODU

- The Asphalt paved road has concrete covered drains with the cover serving as walkways in the settlement areas.
- The route clearly shows a three-segmented development. The first section being the settlement area between Mile 12 and Ajegunle, the second section consists of the rural marshy and sparsely inhabited wetland area and the third section is the area between Majidun Ajelogo Bus Stop and Ikorodu.
- The Road has wide paved shoulders in the sparsely inhabited areas for off road parking. The road is lined on either side with street lights on the entire route and fencing at appropriate locations where there are bus stops or traffic lights at intersections to prevent road crossing in uncontrolled fashion.
- There is provision of adequate road signs for traffic management, direction of road users, and for pedestrian safety and there are clear lane markings.
- Other ancillary structures along the Road include stone facing of embankment and drainage outfalls. There are also humps just before pedestrian crossings.
- Traffic moves freely on the road except at Ikorodu, at locations between the Ikorodu Terminal and the roundabout where noticeable congestion was observed. Aside the queue caused by the roundabout, the congestion is aggravated by the trading activities at Ayangburen Market.
- From the review of the Environmental and Social Management Plan (ESMP) and RAP for the extension project of the BRT, the market had been relocated to a newly constructed Oluwo Odukan market at the Agric bus stop, (by LASG/LAMATA). However, although the new market at Oluwo Odukan had been completed with all the stalls in place, there is not much market activity observed in the market. The market was in fact empty.

TABLE 19: BRT ROAD INFRASTRUCTURE AND FURNITURE

S/N	Items	Baseline Situation	Remarks
1	PAVEMENT	Construction of 7m median dual lane for BRT buses along the corridor.	• The BRT corridor is completed with rigid pavement of asphalt and concrete wearing course at different sections from mile 12 to Ikorodu and were all in perfect and motorable condition. • The four-lane road with asphalt wearing course for other commuters in both traffic directions has also been completed. • At Owode Onirin bus stop, a few meters away from the BRT bus shelter, along the BRT lane, folds were observed on the asphaltic surface that require maintenance.
2	DRAINAGE	Upgrading and construction of suitable	• All the drainage structures along the corridor on both sides had been completed and are in perfect condition.

		water drains along the corridor.	• Noticeable are the silted weep-holes for storm water drainage that require attention to forestall damage particularly at Owode Onirin. Also of note is the fallen drainage covers that need repairs along Idera bus stop and Majidun Ogolonto bus stop. The drainages were well discharged into the surrounding water body along the corridor.
3	JUNCTION MANAGEMENT/ SIGNAGE	Provision of adequate traffic systems and signage along the route.	• The corridor has adequate traffic signs/signals to control and manage traffic flow and guarantee good level of service for the road. • Traffic lights were provided at major junctions like Majidun, Ogolonto junction, Ikorodu round about and Agric bus stop, though at the time of our field survey, the traffic lights were being manually operated.
4	SAFETY AND PRECAUTIONARY MEASURES	Provision for the disable	• Ramps were provided by the walkways and also along the pedestrian bridges for physically challenged persons on wheel chairs.
		Pedestrian Access	• Covered Pedestrian bridges were provided at all bus stops. Walkways were also provided along the corridors for pedestrians. Zebra crossings were also made available at strategic locations. • It was observed at the time of fieldwork that most of the light fittings on the pedestrian bridges were not working. At night, this would discourage people from using the overhead bridges and this could lead to accidents when pedestrians cross express road on foot.
6	ROAD CONDITION	Roughness of the road	• The road surface was smooth as there were no potholes or ditches.
7	STREET LIGHT	Provision of street lights.	• Street lights were provided throughout the corridor on both traffic directions though some of the lights need maintenance.
8	BUS STOP	Construction of Bus Station and shelter facilities at Mile-12, Owode Onirin, Owode, Ajegunle, Ogolonto, Agric and Aruna areas of the corridor.	• Bus stops and laybys were in place at: o Mile-12 o Owode Onirin o Owode o Ajegunle o Ogolonto o Agric o Aruna
9	SPEED CONTROL	Provision of speed breakers.	• Speed breakers were put in place on approaching the BRT terminals, U-turns and the lay-bys at Itowolo, Owode Onirin, Asolo and at Awotu bus stops.
10	BRIGDE AND DECK ON PILE	Improvement of existing bridges and culverts along the corridor	• Bridges were placed at strategic points and were in good condition.
11	HORTICULTURE	Landscaping of the corridor presented a picturesque view along the driveway	• Green areas were observed but will require regular maintenance so as to elevate the corridor ambient.
12	TERMINAL	Construction of BRT Bus Termina at Mile-12 and Ikorodu ends of the corridor. Construction of mega Bus Depot at Majidun area; off the corridor	• BRT bus terminals were constructed at both ends of the corridor, comprising of BRT bus parks, street lights, bus shelters, administrative building, water tank and public toilets. The mega bus depot was also constructed at Majidun, off the corridor.
13	TRAFFIC MANAGEMENT STRATEGY	Provision of adequate traffic systems and signage along the route	• Traffic signs were provided and traffic officers were available at strategic junctions, most especially areas where there were traffic lights. • The road was designed to accommodate and manage traveling speed in densely populated areas along the corridor by introducing speed breakers, curves, roundabouts to slow down vehicles and thus averting accidents on the corridor.
14	ROAD FURNITURES	Road signs and Markings	• The road markings, including zebra crossings and road signs have been completed but will require regular maintenance to enhance their visibility. Road users appear not to be adequately trained to observe and pay attention to the use of the road signs. • The clear view fence barrier was also in place and completed to deter pedestrians crossing the express. At Idera bus stop, a portion of the fence wire needs repairs because it has been damaged.

3.2.2.4 MILE 12 – IKORODU INFRASTRUCTURE FACILITY INVENTORY

The following infrastructure and road furniture were physically observed and enumerated during field work.

TABLE 20 ROAD INFRASTRUCTURE AND FURNITURE

S/N	Infrastructure	Location in km from Mile 12
1	Mile 12 Terminal	0.00
2	Mile 12 BRT Bus Stop/Layby	0.152
3	Bridge	0.244
4	Bridge	0.378
6	U – Turn	0.915
7	Owode Onirin Bus Stop	1.09
8	Pedestrian Crossing	1.25
9	Owode onirin Layby	1.39
10	Idera Bus Stop	1.65
11	Foot bridge	2.04
12	Idera Layby	2.13
13	U – Turn	2.24
14	Layby	2.56
15	Irawo Bus Stop	2.70
16	Foot bridge	2.83
17	Pedestrian Crossing	2.89
18	Layby	3.42
19	U – Turn	3.83
20	Pedestrian Crossing	3.87
21	Bridge	4.03
22	Bridge	4.24
23	Layby	4.62
24	Bridge	4.73
26	Bridge	5.11
27	U – Turn	5.39
28	Bridge	5.78
29	Bridge	6.07
30	U – Turn	7.27
31	Bridge	7.62
32	Majidun Bus Stop	8.04
33	Foot bridge	8.10
34	Bus Depot	8.15
35	U – Turn	8.54
36	Bridge	8.84
37	Pedestrian Crossing	9.09
38	Majidun Ogolonto Bus Stop	9.25
39	Footbridge	9.35
40	Layby	9.44
41	Signalized Junction	9.55
42	Layby	9.82
43	Pedestrian Crossing	9.94
44	Layby	10.4
45	Agric Terminus	10.7
46	Signalized Junction	10.89
47	Foot bridge	10.95
48	Aruna Bus Stop	11.1
49	Footbridge	11.1
50	U – Turn	11.6
51	Layby	11.6
52	Pedestrian Crossing	12.00
53	U – Turn	12.10
54	Pedestrian Crossing	12.30
55	Ikorodu Terminal	12.50
56	Signalized Junction	12.9
57	Pedestrian Crossing	13.00
58	Ikorodu roundabout	13.50

3.2.2.4 TRAVEL TIMES ALONG CORRIDOR MILE 12-IKORODU

The methodology for obtaining the travel time on the BRT corridor of Mile 12-Ikorodu was experiential. A mystery traveller was on board the BRT buses and conducted 12 trips in (6 round trips) along the corridor. The mystery traveller used a GPS to record times of travel and waiting times at bus stops. The data compiled is shown in the following Tables 21 and 22.

TABLE 21: OUTBOUND (MILE 12-IKORODU) TRAVEL TIME RECORDING FOR 6 TRIPS

Terminal/Bus Stop	Trip 1		Trip 2		Trip 3		Trip 4		Trip 5		Trip 6	
	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time
Mile 12-Owode Onirin	00:00	01:41	00:00	00:51	00:00	00:46	00:00	-	0	01:52	0	03:49
Owode Onirin-Idera	05:52	06:35	00:59	01:42	00:54	01:37	-	03:35	01:57	03:35	03:52	04:48
Idera-Irawo	07:25	08:00	01:57	03:54	01:45	03:42	03:52	04:46	03:51	08:15	05:13	05:59
Irawo-Majidun Awori	08:03	09:09	04:02	11:54	03:56	11:22	04:57	0	08:24	09:44	06:15	08:10
Majidun AworiMajidun Ogolonto	9:32	10:16	12:15	14:10	11:35	13:22	-	12:15	10:07	11:21	08:30	10:05
Majidun Ogolonto-Agric Terminus	10:37	16:27	14:17	17:52	13:32	17:24	12:37	15:12	11:29	17:25	10:16	18:49
Agric Terminus – Agric	16:33	18:40	18:05	20:06	17:32	19:15	15:23	-	17:42	18:34	19:11	20:29
Agric-Aruna	18:58	21:06	20:47	22:27	19:23	21:03	-	18:38	18;47	20:22	20:45	22:39
Aruna-Ikorodu Garage	22:17	**23:19**	22:52	**23:44**	21:10	**23:15**	18:51	**20:02**	20:31	**23:11**	22:51	**24:37**

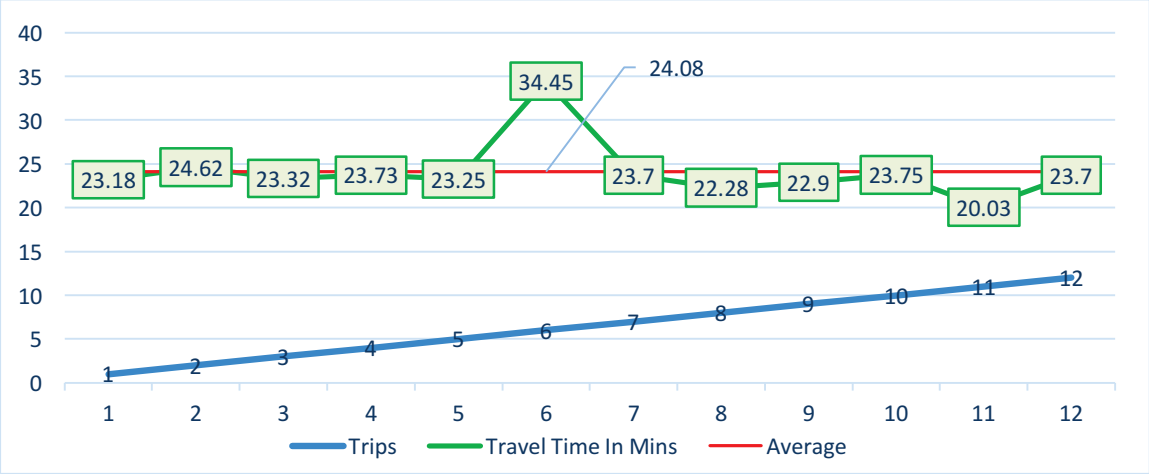
TABLE 22: INBOUND (IKORODU-MILE 12) TRAVEL TIMES RECORDING FOR 6 TRIPS

Terminal/Bus Stop	Trip 1		Trip 2		Trip 3		Trip 4		Trip 5		Trip 6	
	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time	Journey Start	Stop time
Ikorodu Garage-Aruna	0:00	1:52	00:00	3:49	0:00	2:17	0.00	1:49	0.00	3:22	0.00	2:56
Aruna -Agric	1.57	3:35	3:52	4:48	2:31	3:35	1:53	3:20	3:41	4:16	3:04	3:42
Agric-Agric Terminus	3:51	8:15	5:13	5:59	4:04	5:16	3:34	7:56	44:25	4:54	4:13	4:35
Agric Terminus-Majidun Ogolonto	8:24	9:44	6:15	8:10	5:42	12:14	8:34	9:59	5:14	8:02	4:46	7:02
Majidun Ogolonto-Majidun Awori	10:07	11:21	8:30	10:05	12:35	-	10:16	11:25	8:21	10:05	7:15	9:04
Majidun Awori-Irawo	11:29	17:25	10:16	18:49	-	17:05	11:30	-	10:21	17:43	9:19	15:38
Irawo-Idera	17:42	18:34	19:11	20:29	17:24	-	-	16:45	18:16	19:42	15:46	16:47
Idera-Owode Oniring	18:47	20:22	20:45	22:39	-	-	28:17	-	20:12	21:04	16.56	17:35
Owode Onirin-Mile 12	20:31	**23:11**	22:51	**24:37**	22:01	23:42	-	34:27	20:50	23:42	18:14	22:17

3.2.2.5 AVERAGE TRAVEL TIME MILE 12-IKORODU

The average travel time on the Mile 12-Ikorodu is 24.08 minutes. This is the mean of all the respective times of the 12 trips contained in Tables 20 and 21. Compared to the baseline of 120 minutes there is a 42% reduction in travel time. The chart following shows the individual trip times and the average in shown in the chart. The data shows an outlier result observed on the 3rd in-bound trip which recorded 34.45 minutes as against the other trips that ranged between 20-25 minutes and the delay was as a result of some obstruction under the Mile 12 bridge which kept the BRT bus on one sport for about 7 minutes. As this occurs on more than a few occasions it was reasonable not to discard the result as it is a true reflection of the vagaries of Lagos traffic.

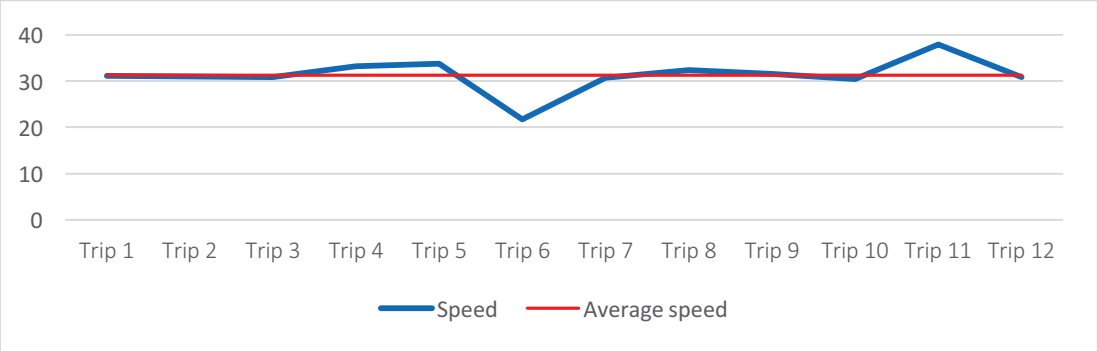
CHART 5: AVERAGE TRAVEL TIME DERIVED AVERAGE OF GPS RECORDINGS OF TIME ON 12 TRIPS ON CORRIDOR



3.2.2.6 TRAVEL SPEED MILE 12-1KORODU

The travel speed which was also GPS recorded shows a range from 30-40 Km/h with the mean being 31.3Km/hr as is shown in Chart 6 following:

CHART 6: JOURNEY SPEED ON 12 TRIPS WITH AVERAGE SPEED DEPICTED



3.2.2.7 AVERAGE TRAVEL TIME OF OTHER COMMERCIAL BUSES MILE 12-IKORODU

The Consultants embedded a mystery traveller to record travel times and stop times on a few trips in other commercial buses. This would give real time comparison in travel times of buses that are not on segregated BRT lanes but ply the same route and it will also show the time savings for other commercial buses from baseline of 120 minutes. The results are contained in Tables 22 following. The data shows that on the

average it takes the non BRT buses about 49 minutes to make the same journey that the BRT makes in 24 minutes. Many reasons converge in the making of this time difference of about 25 minutes that the BRT has over the other commercial buses (not LAGBUS). The other commercial buses spend more time picking and dropping passengers off, they make more stops at bus stops that are in between. Also the buses are not as in serviceable condition as the BRT and as such are not able to move as fast as the BRT and finally the buses do not have right of way like the BRT and so flowing along with other road users slows down all traffic somewhat. What the survey shows is that the road construction has greatly reduced travel times on the corridor and make commuter experience more pleasant.

TABLE 23: GPS RECORD OF TRAVEL TIME AND SPEED OF OTHER PUBLIC COMMERCIAL BUSES (MILE 12-1KORODU)

Terminal/Bus Stops	Journey Start Time (Mins)	Stop Time (Mins)	Distance Travelled (km)	Running speed in km/hr
Ikorodu Garage – Aruna Bus Stop	0.00	3:59	1.18	17.79
Aruna – Agric	5:42	7:56	1.70	14.51
Agric/Agric Terminus	9:12	10:25	2.07	18.20
Agric Terminus – Majidun Ogolonto	12:11	17:52	3:30	12.97
MajidunOgolonto – Majidun Awori	20:13	24:21	4.51	17.58
Majidun Awori – Irawo Bus Stop	26:12	40:32	9.53	21.02
Irawo – Idera	42:11	44.03	10.27	23.74
Idera – Owode Onirin	45:37	47:38	11.13	25.67
Owode Onirin – Mile 12	48:17	**49:10**	12.02	60.00
Average running Speed				23.498

3.2.2.8 AVERAGE TRAVEL TIME AND SPEED ON THE MILE 12- TBS BRT LITE CORRIDOR

From all the records of the readings the average travel time between Mile12 and TBS is 45.50 minutes and the average travel time between Ikorodu and Mile12 is 24.08 minutes therefore the total travel time of the corridor is 70 minutes which is one hour and 10 minutes approximately.

TABLE 24: BRT LITE CORRIDOR TRAVEL TIME AND SPEED

Terminal/Bus Stop	Journey Start Time In Minutes	Stop Time In Minutes	Distance Travelled In Km	Average Running Speed
Mile12				
Mile12 – Ketu	0:00	-		
Ketu – Ojota	-	-		
Ojota – New Garage	-	-		
New Garage – Maryland	-	11:09	5.41	29.11Km/hr
Maryland – Idi Iroko	11:44	13:36	6.59	37.86 Km/hr

Idi – Iroko – Anthony	13:54	-	-	
Anthony – Obanikoro	-	16:35	8.65	46.12km/hr
Obanikor – Palmgroove	16:57	17:45	9.20	41.25km/hr
Palmgroove – Onipanu	18:10	-		
Onipanu – Fadeyi	-	-		
Fadeyi – Ojuelegba	-	-		
Ojuelagba – Stadium	-	25:52	14.1	40.44km/hr
Stadium – Iponri	26:35	28:25	15.07	31.63km/hr
Iponri – Costain	29:05	30:15	16.2	53.09 km/hr
Costain – Lventis	31:14	36:43	19.9	40.43lm/hr
Leventis – CMS	37:14	40:10	21.3	29.68km/hr
CMS – TBS	40:33	**45:50**	22.9	**18.18km/hr**

3.2.2.8 DIRECT AND INDIRECT IMPACT OF ROAD PROJECT INVESTMENTS-TIME SAVINGS

The socio-economic survey on impact of the road project which was conducted on commuters (BSI and RSI) shows in the results that commuters confirm that the road construction has resulted into travel time savings. 71% of the BRT user- respondents stated that the trip between Mile12 and Ikorodu presently takes less than 30 minutes. Prior to the intervention against 94% said that the same trip used to take between 50- 80 minutes. It is therefore clear that there has been a minimum time saving of 20 minutes and as much as much as 50 minutes for commuters. The commuters' judgement of time savings concurs with the survey findings from the actual travel times which measured average travel time of 24.08 minutes, thus effective time saving is 26.92 minutes. The respondents who were not BRT users also confirmed travel time savings with 73% of respondents stating that it takes about 25 minutes to traverse the corridor as against 60-80 minutes that it used to take. Car owners however record travel times faster than BRT at between 18-20 minutes. This is understandable since cars hardly have waiting times. In all the conclusion is that there has been time savings of at least 26 minutes to some commuters and as high as 30 minutes to some. Car owners make the greater time savings while BRT makes the next greater savings. For commuters who use buses, BRT is the preferred means of travel because of the time savings, the comfort and security of and on the buses.

3.2.2.9 COST SAVINGS: WILLINGNESS TO PAY EXTRA

Passengers' willingness-to-pay (WTP) for improving the quality levels of a transport service was examined. The WTP survey is an important tool in the evaluation of transport investments, because it allows the investor or provider to establish the rate which could be debited to the users. The survey shows that 68.3 percent of household respondents are not willing to pay more for an improved BRT service because most of them stated that the service is owned by the government and as such ought to be subsidized. For about 32.7% of the sample that are willing to pay more, about 44% of them are willing to pay just about 5 percent increase in fares.

3.2.2.10 SUMMARY OF INCOME SAVING:

Prior to the BRT extension commuters from Mile 12 –Ikorodu spent an average of about N4120 to N4,500 monthly. When the extension project was complete, many commuters migrated to the BRT service and transport cost reduced to about N4,000 monthly. However, the Franchisee of th BRT recently increased

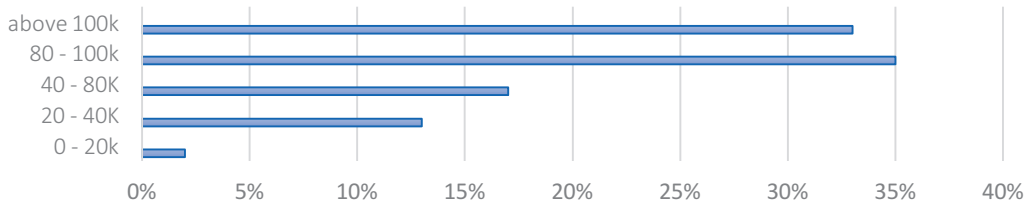
fares on the BRT to N200 per round trip taking the average monthly expenditure on transport to N5000. The result of this increase is that commuters' expenditure on transport has increased by about 20% This is a result which may appear unfavourable at project end but it is a result that must be put into context relative to non BRT transporters' fares. In context the BRT fares are still relatively lower than all other transport of correlative status. The survey found that NURTW buses and the Mini buses charge the sum of N150 per trip bringing a round trip on the corridor to N300 which means that a commuter who chooses not to travel on board the BRT service bears a monthly transport expenditure of N7500. Compared to the transport expenditure on the BRT the commuter has a 33.3% savings on transportation.

From the Household survey and passenger survey, commuters believe that there is even greater percentage gain on cost of transportation via the BRT because the other commercial buses competing with the BRT on the corridor do not commit to a fixed price and change prices as windows of opportunities present. So 95% of the respondents are not opposed to the fare increase especially as they get more comfortable and dignifying and faster ride on the BRT.

3.2.2.11 SUMMARY OF BRT USERS REPORT OWNING A CAR OR TWO WHEELER:

In the overall survey of BRT users, the percentage of Users reporting owning a car or two wheelers is 34% out of which 38% are female and 60% are between the age of 20 and 39 years old. Another 30% are between the age of 40 and 59 years old. 75% are married and 80% has post secondary school education; however, 64% are employed in the private sector of the economy. The income distribution of the BRT users reporting owning a car or two wheeler is as shown below.

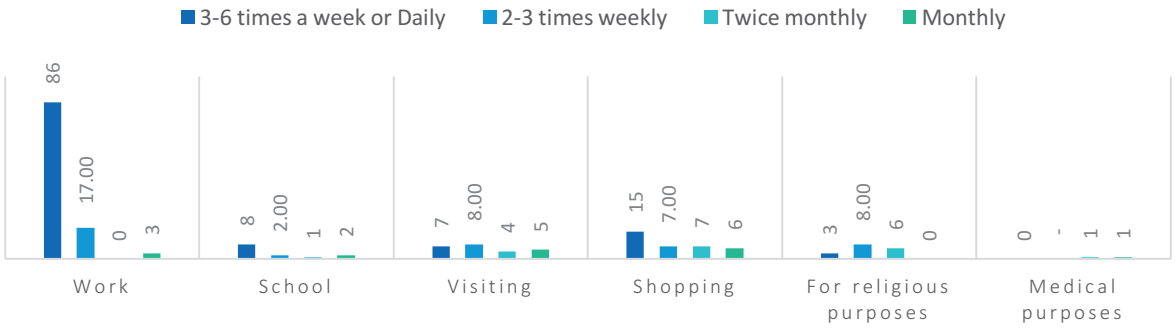
CHART 7: SUMMARY OF INCOME DISTRIBUTION OF BRT USERS OWNING VEHICLES



3.2.2.12 TRIP PURPOSE AND FREQUENCY

Majority of commuters use the BRT to get to work daily or between 3-6 times a week so work is the greatest driver of BRT journeys. A lot of these journeys are made using *Okada* as the first mode, while the BRT is the main mode and the egress mode could either be walking or *Okada*. The survey findings show that school children are not well represented as commuters because on the days that children go to school (3-5 times weekly) school travels account for a very low frequency figures. In terms of the travel purpose of the BRT users, a sizable percentage of both male (58.15%) and female (37.5%) respondents use the service to work, the others to school, market, visiting and religious services. A more direct approach to ascertain the level of benefit of BRT to respondents shows that 48.4% of male respondents consider the BRT service highly beneficial while another 30.6% considers it slightly beneficial. Of the female respondents, 50% considers the BRT highly beneficial and another 30% slightly beneficial. In both cases, well over 75% of respondents stated that BRT has been favourable to them. Some of the listed benefits include: reduced travel cost, better and timely access to places of work/businesses, relatively safer for transporting school children, reduction in travel expenses and reduction of travel fatigue.

CHART 8: FREQUENCY AND PURPOSE OF JOURNEY ON BRT



3.2.2.13 PROFILE OF HOUSEHOLD RESPONDENTS:

The survey shows that 55 percent of respondents are males who are mostly (41.1%) aged between 31-40 years and business men, with more than 45 percent of them having graduated from a tertiary institution.

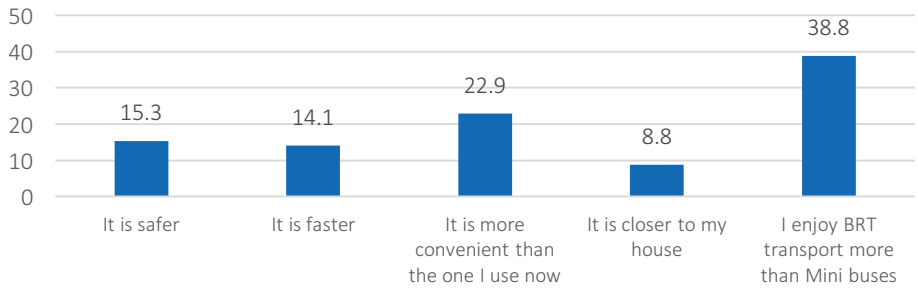
TABLE 25: HOUSEHOLD PROFILE

Sex	%	Age	%	Occupation	%	Educational Status	%
Male	55.3	<20 years	2.5	Civil servant	13.1	None	4.5
Females	44.7	21 - 30 years	29.4	Business	46.7	Primary school	2.5
		31 - 40 years	41.1	Military/Paramilitary	8.0	Secondary school	32.7
		41 - 50 years	14.2	Student	8.0	Tertiary	45.2
		51 - 60 years	10.7	Unemployed	9.5	Vocational	15.1
		61 years and above	2.0	Housewife	14.6		

3.2.2.14 PREFERENCE FOR BRT

The study shows that more than 86 percent of respondents stated that they prefer using the BRT service,. Of this absolute percentage further disaggregation shows of the reasons for the preference are as as contained in the chart below:

CHART 9 HOUSEHOLD MEMBERS' PERCEPTION OF BRT SERVICES



3.2.2.15 TRAFFIC COUNT

The traffic count survey is aimed at ascertaining the average number of passengers carried/Standard bus/day along the project corridor. The average occupancy for the vehicular types surveyed are as follows:

- **Mini Bus (Danfo):** 13 passengers
- **Other Buses**: (Coaster, LT 28 etc) 25 passengers
- **Car:** Average of 2 passengers
- **Taxi:** 1 passenger

The occupants in these vehicles are those who could have used the BRT service, but chose, for some reasons to use other modes of transportation along the corridor. The traffic count was undertaken on the 31st March 2017 at Mile 12 and the direction of the the count was outbound from Mile 12 to Ikorodu. The result of the count is in the table 26 following. A reverse directional count for inbound traffic from Ikorodu-Mile 12 was also undertaken on the same day and the results presented Table 27 following. The traffic count continued for 6 days thereafter to give basis for the averages to be derived and data for these days are contained in *Appendix 3*.

TABLE 26: TRAFFIC VOLUMETRIC COUNT MILE 12-IKORODU DIRECTION EB (WEDNESDAY 29 MARCH 2017)

TIME	CARS & UTILITIES	LIGHT BUSES	HEAVY BUSES	LIGHT TRUCKS	HEAVY TRUCKS	MOTOR CYCLES	TOTAL IN PCU
7-8am	390	185	85	41	8	280	1057
8-9am	830	480	230	180	40	304	2458
9-10am	650	375	237	117	21	288	2002
10-11am	731	285	175	175	8	72	1790
11-12pm	515	200	139	51	8	90	1183
12-1pm	580	220	80	56	12	76	1159
1-2pm	447	175	115	42	22	120	1081
2-3pm	590	265	111	53	16	103	1300
3-4pm	705	230	147	68	29	84	1501
4-5pm	740	410	250	80	26	84	1038
5-6pm	515	410	106	64	66	68	1466
6-7pm	240	200	75	68	44	16	848
	Total						17,778

TABLE 27:TRAFFIC VOLUMETRIC COUNT MILE12 – IKORODU DIRECTION WB (THURSDAY 30 MARCH 2017)

TIME	CARS & UTILITIES	LIGHT BUSES	HEAVY BUSES	LIGHT TRUCKS	HEAVY TRUCKS	MOTOR CYCLES	TOTAL IN PCU
7-8am	1438	288	126	114	102	202	2613
8-9am	1232	325	189	99	73	215	2477
9-10am	1340	353	106	56	71	197	2342
10-11am	1425	281	85	57	91	92	2287
11-12pm	809	237	86	46	70	155	1601
12-1pm	936	236	87	66	81	267	1881
1-2pm	1023	188	99	67	96	190	1926
2-3pm	606	160	68	63	87	219	1410
3-4pm	1560	459	95	73	51	108	2564
4-5pm	1420	291	88	85	74	130	2340
5-6pm	1340	151	87	70	48	108	2157
6-7pm	1280	137	52	35	33	70	1726
	Total						25,324

3.2.2.16 TRAFFIC DATA ANALYSIS

- There is a high competition between the BRT Buses and other Buses going to Ikorodu. The reason why the other buses still compete is the almost bus stop to bus stop service they render and also their ability to carry wares for the women who trade in Ikorodu.
- The use of cars is still relatively high as means of travel, because at Ikorodu, there is no existing park and ride facilities, also, most of these car owners live far from the main road and needs their cars to move in the morning or evening time due to logistics and security considerations.
- The use of Taxis is low, which is a function of finance. Taxis are expensive, motorists who can afford it may not be able to do that every day, hence its low patronage and also, low income owners don't usually use Taxis
- During the morning peak period outbound to Ikorodu, mini buses are lesser in volume compared to in-bound to Mile12 for the same period, this is because most vehicle move out towards the south-east corridor for work and trading purposes.
- Mini Bus figures are high outbound to Ikorodu at inter-peak period due to the longer length of time and due to more movement for trading activities for people departing Ketu and Mile 12 market to beat the evening rush hours.
- The use of cars is high for all periods although with changes in volume for the AM period outward Ikorodu is quite high more than double cars entering Ikorodu from Mile 12. These are work bound cars and it is largely reversed in the evening.

3.2.2.17 NUMBER OF DIRECT BENEFICIARIES BY GENDER

Analysis of BRT passenger survey carried out along Mile 12-Ikorodu road reveals that 60.8% of direct beneficiaries are males with a corresponding 39.2% as females. Although women make a lot of journeys, they are mostly short trips. Most users of the BRT travel far in it, hence the high incidence of male travellers. The average daily passenger ridership on the BRT is 165,000 per day, this figure having been obtained from data from the Franchisee and confirmed by the ICR BRT field survey. The average daily passenger count was taken for five days from Monday to Friday and then 60% and 50% of the daily ridership were taken respectively for Saturday and Sunday because that was the confirmed percentage from both field survey and the data from Primero Transport Limited the Franchisee on the corridor. The total of the one-week count is then multiplied by 52 weeks to give an annual passenger count of 52,338,000 (Fifty-Two Million, Three Hundred and Thirty-Eight Thousand Naira) out of which the direct beneficiaries who are females at 39.2% is 20,516,496 (Twenty Million, Five Hundred and Sixteen Thousand, Four Hundred and Ninety-six) and males make up the balance at 31,821,504 (Thirty-one Million, Eight Hundred and Twenty-one Thousand Five Hundred and Four.

3.2.2.18 NUMBER OF INDIRECT BENEFICIARIES BY GENDER

To determine the number of indirect beneficiaries by gender of those who are able to traverse the extended corridor in less than 45 minutes, the Volumetric Traffic count was used as basis for judgement. The average travel times of non BRT buses and motor cars were also the basis of the travel times used to derive those vehicles that travel under 45 minutes. The travel times were obtained by GPS as explained above. For the two wheelers the Mystery Traveller also recorded times by GPS. The vehicles that fit into the category are:

- Motor cars
- Two wheelers
- Minibuses (These buses had times ranging from 42-48) and thus an average of 45km/hr.

Minibuses were accorded an average of 11.52 persons, while motor cars had an average of 2.63 persons with the 2 wheelers accorded average of 2 persons. The traffic count and assignment of averages was complimented with the visual occupancy survey of the vehicles. The average total volume of of indirect beneficiaries per day came to 121,732 persons. In a period of one year this amounts to 44,432,180 out of which 17,417,415 are women using the 39.2% average obtained on the corridor in the Household survey and Traffic survey.

3.2.2.19 SUMMARY OF BRT USERS REPORT OWNING A CAR OR TWO WHEELER AND HAVING A FAVOURABLE IMPRESSION OF THE BRT SERVICE

In the overall survey of BRT users, the percentage of users reporting owning a car or two-wheeler is **22.89%.** 62% of this subset are males and 38% females. 80% of them have post secondary education and 64% are privately employed while 36% are public servants. This subset also has the following income peculiarities that the critical mass of 68% earn a monthly income of above N80,000.

The BRT users reported owning a car or two wheeler having a very good impression of BRT according to the survey is **89.4%**, while 91.5% confirmed that they are satisfied with the services of BRT. The remnant who are dissatisfied report that there is undue delay in adding buses to the fleet at Ikorodu Terminal especially during peak period.

3.2.3 MASS TRANSIT ALTERNATIVE ANALYSES STUDIES (SUB-COMPONENT 2C)

A summary of the MTAS Report is as follows:

- A long list of 15 corridors which were deemed to be high volume corridors was first agreed with LAMATA as the MTAS evaluation scope. The 15 Corridors from the STMP were: (a) Ikeja Butterfly route; (b) Mile12-Marina; (c) Maryland-Iyana Ipaja; (d) Oshodi- Mile 1-Obalende-Oworonshioki; (e) Circular route; (f) Oworonshoki – Apapa; (g) Berger-TBS; (h) Berger- Iyana-Isolo; (i) Victoria Island Route; (j) Marina-Ajah; (k) Berger-Local Airport; (l) Otta-Iddo; (m) LASU-Shagamu through Iyana-Ipaja and Berger; (n) Owode-Otta-Itele- Lagos-Abeokuta Road; (o) Lekki new coastal road; (p) Lagos Outer Ring Road.
- MTAS maintained consistency with the Bus route network study along with the update of the STMP.
- In order to inform the selection of priority corridors, the Multi-Criteria Analysis (MCA) approach was used. The criteria of analysis were Urban and Transport Integration, Economy Efficiency, Environmental and Social Impacts, as well as Costs and Implementation Difficulties. Scoring of corridors against each criteria was undertaken using quantitative data (e.g traffic and public transport counts, populations, etc). Corridors with similar scores were then allocated to groups.
- The result of the MCA was the prioritization of about 6 corridors for which, option for type of mass transit for each would be identified. The corridors on the final short-list are:
    - Ikeja Butterfly route,
    - Maryland-Iyana Ipaja (through Ikeja),
    - Mile 2-Oshodi-Oworonshoki,

- Mile 2-Apapa,
- Victoria Island route,
- LASU-Mowe (through Iyana-Ipaja).

- Four (4) options of transport mode that were considered for each corridor were BRT, light rail/ tram, monorail and heavy rail and analysed so as to make informed choices for each of the 6 corridors and which would provide the required mass transit capacity for each corridor.
- The summary of the transport modes found appropriate for each of the 6 prioritized corridors are as follows:

TABLE 28: TRANSPORT MODE RECOMMENDED FOR PRIORITIZED CORRIDORS

	Corridor	Mode
1.	LASU – Redeem	Monorail
2.	'Mile 2-Apapa	Bus-based (BRT)
3.	'Mile 2-Oshodi-Oworonshoki'	Bus-based (BRT)
4.	Maryland-Iyana Ipaja (through Ikeja)	Bus-based (BRT)
5.	Victoria Island route	Monorail
6.	Ikeja "V" route	Bus-based (BRT)

- Conceptual designs were developed for each mode based on international designs standards and parameters for the selected modes and some outputs of the conceptual design exercise were:
  - Alignment plans showing station locations, depot locations and how the mass transit system would be inserted into the right of way (e.g along a media, along one-side or both sides of the road, e.t.c).
  - Station Concepts.
  - Capital and operating cost estimates.
  - For bus-based modes, three types of BRT Stations were proposed.
- The concept designs had estimates of capital and annual operating costs for each corridor.
- There are two main financial sources than the government budgets for infrastructure investments and operations; they are Co-financing from International Financial Institutions (IFIS) in form of loans, grants etc and Public-Private Partnership (PPP) where private sector partners derive a financial return for Provision of services from end-users.
- The approach to Prioritisation, using multi-criteria analysis is the same used for the Corridor Selection as well. The criteria included Urban and transport integration, economic efficiency, environmental and social impacts, Benefits and Costs.
- The analysis indicates that LAMATA's Priority Should be the Oworonshoki-Apapa Corridor. This corridor is the amalgamated corridor of Apapa-Mile 2 and Oworonsoki- Oshodi-Mile2 Oworonshoki-Apapa scored highest because it serves a long and densely populated corridor, and the VOC data indicates that it would need to carry 23,000 pphpd by 2030. The shorter routes (Ikeja "V" Route, Maryland-Iyana Ipaja and Victoria Island) serve relatively lower populations than Orowonshoki-Apapa or LASU-Redeem.
- The Ikeja "V" and Mayland – Iyana Ipaja routes could be developed as a single package as the total costs are relatively modest (around US$125m) and because they share a common section in the Iyana Ipaja area. This will be the next priority after the Oworonshoki-Apapa. The 4th and 5th priority are those that are the Monorails if they are to be funded from LAMATA's funds. However if the

PPP approach is used then they could also be developed alongside any of the other three. The survey stated that there is interest in both Corridors from Private Sector investors.

- Actions which will be required to deliver operational mass transit system on the prioritised corridor have a number of gateways: Confirmation of feasibility; definition of PPP; and Selection of scheme Promoters.
- MTAS has provided a preliminary cost estimates along with a funding and investment plan for the implementation of the project.

3.2.4 DEVELOPMENT OF COMPLIMENTARY BUS SYSTEMS (COMPONENT 2D)

This sub-component financed development and implementation of a service and operations plan for improving passenger flow at terminals and other key stations, including origin-destination surveys, identification of new bus routes, and modal integration facilities. The potential routes for the feeder bus service have to be identified based on origin-destination surveys at terminal locations. The survey will assist with identification of the routes that will provide the most benefit to most users. The sub-component will include stations and terminals for the feeder routes and their development on the trunk alignment.

3.2.4.1 BUS ROUTE NETWORK STUDY

LAMATA commissioned the Bus Route Network Study that would provide a grid of background on conventional bus services covering the state, including bus services to the rail corridors, BRT corridors, ferry terminals and the networks operated by the informal operators. The contract for the Bus Route Network Study was awarded at the same time with the studies on the Update of the STMP and the Alternative Mass Transit Analysis respectively and because of the inter relationship between the three studies, a steering committee was set up by LAMATA comprising the 3 project managers in LAMATA, AEC and the 3 consultants. This was to ensure data reconciliation and consistency on the output of the three consultancies. The scope of the study covered: Identification of all bus routes in Lagos; development of a network service plan; preparation of bus route maps; preparation of all regulatory and legal issues for the current informal PT operators and identification of viable and non-viable routes for PPP investment. The following is a summary of the study:

- An exhaustive and comprehensive data collection exercise was undertaken through physical identification and mapping of all the bus motorparks within the study area; Identification of the destinations and mapping of bus routes operated from each motorpark; Determination of existing bus frequencies, and bus type on each route; thus enabling the calculation of bus-route capacities as part of mapping the network 'supply'; observing passenger demand levels along whole length of each highest bus (frequency) routes; identifying overarching bus passenger travel patterns (origin-destination). This will be informed by household survey data whilst also supplemented with details of major areas of interest and trip generators; and Collecting operational information including route lengths/round trip times and fare charged"
- An output of the study is fully geo-referenced which can be viewed in GIS packages, and in combination by using Google EarthTM. The visualisation of the existing bus network within the Google Earth environment is a powerful medium for individuals who don't have access to bespoke GIS software to visualise and appreciate the spatial extent and complexity of the current network, and ultimately how the major arterial highway routes in Lagos support multiple routes from the numerous motorparks.

- The study recommended three classifications of service as appropriate for the Lagos Bus Network:
- Mass Transit Routes – demand in excess of 6,000 pphpd for much of the corridor (Apapa Wharf to Oworonsoki, via Mile 2 and Oshodi, Igbo Eleren (Okokomaiko) to CMS, via Mile 2 and Eko Bridge. Iyana Iba to Iyana Ipaja, via Igando and Isheri, Iyana Ipaja to Ikeja,Ijaye (Alakuko) to Ebute-Ero, via Oshodi, Yaba and Carter Bridge; Ibafo to Obalende, via Ojodu Berger, Oworonsoki and 3rd Mainland Bridge; Ikorodu to Oshodi; Mile 12 to CMS, via Ojuelegba and Eko Bridge. Of these alignments, two are already being operated as BRT (though the priorities on 3rd Mainland Bridge are not being enforced), one is under construction, and another has a partial design. Further, two of the corridors have LRT designs, (Agege Motor Road – Red Line, Badagry Expressway – Blue) with the latter of these LRT corridors already under partial construction.
- High Capacity/Tributary Routes–demand generally between 6,000 and 2,000 pphpd (Iyana Ipaja to Ojodu Berger; Igando to Mushin, via Ikotun and Ijesha; Ijegun to Isheri; Egbeda to Dopemu；Iyana Ipaja to Abule-Egba；Agege to Iju Ishaga；Ikeja to Alausa / 7-Up；keja to Maryland; Itire to Mushin; Yaba to Oworonsoki; Alaba to Ijora; Ijora to Oyingbo; Apapa Wharf to Ijora; Obalende to Ajah)
- Standard Routes – demand between 2,000 and 1,000 pphpd (or 500 pphpd for midi- buses) The final tier of bus routes are defined as Standard Routes and primarily focused on providing a locally derived bus service which feeds into mass-transit network. Historically, this service would have been provided by the Okada motorcycle sector; however, following the imposition of the Lagos State Transport Act (September 2012) this informal paratransit sector has been made illegal across much of the State's highway network.
- A review and analysis of historic bus route registration data has shown that well over 60% of public transport capacity was operated between just 19 main motor-parks (taken in alphabetic order): Agege, Alakuko (Ijaye), (Apapa) Wharf, CMS, Ebute Ero, Ikeja, Ikorodu, Ikotun, Iyana Ipaja, Ketu, Mile 2, Mushin, Obalende, Ojodu Berger, Ojota, Ojuelegba, Oshodi, Oyingbo, and Yaba. Most of these motor-parks also served as the inner terminals of, and hence the main interchanges to, the core urban bus network for routes from/to other destinations. As such, their contribution to the overall transport supply was well in excess of 90% of all bus registrations. in developing the revised bus network for Lagos, it is necessary to retain a significant role for these motor-parks.
- The review of bus route registration data showed that more than 25% of public transport capacity was operated through just four main motor-parks (taken in alphabetical order): CMS, Ikeja, Mile 2, and Oshodi.
- Given the significance of Ikeja, not only as a commercial centre but also as the political capital of Lagos State, there is now a need to prepare a Traffic Master Plan incorporating full public transport priority measures and mass-transit connectivity for the area. Clearly such a plan would need to take due account of the future Red Line LRT development and its modal interchange to bus services between the individual and Motorparks within Ikeja.
- Mile 2 lies at the intersection of the mass-transit routes on the Apapa - Oworonsoki Expressway and the Lagos - Badagry Express Road, and straddles the Blue Line LRT currently under construction. As such, it serves as the transit hub for the near-west of the Lagos metropolitan area despite lacking the infrastructure to serve that purpose adequately. There is a need for full modal integration at this locality, based on the new LRT station and its highway connections.
- Oshodi lies at the intersection of the mass-transit routes on the Apapa - Oworonsoki Expressway and the Agege Motor Road, and straddles the proposed Red Line LRT. As such, it serves as the

transit hub for the geographic centre of the Lagos metropolitan area despite lacking the infrastructure to serve that purpose adequately. As in the case of Ikeja, part of the problem arises from the Agege Motor Road lying too close to the main Nigerian Railway Corporation track to permit an all-movement grade-separated intersection at this point. Future integration with the Red Line LRT would be compromised as a consequence unless new local road links are constructed.

- A further 19 motorpark locations have been identified to be of significance within the urban bus transit network and would form "Transit Hub" interchanges. These would need to provide for service interchange capability, and basic levels of passenger service such as shelter and toilets.

3.2.4.2 IKEJA BUS TERMINAL

The proposed Ikeja Mega Bus Park/Terminal is being financed as a new activity under Sub-Component 2D, using resources from savings in project costs associated with the devaluation of the value of the Naira.

The LASG is implementing the project-development of a Bus Terminal and Park in Ikeja as part of the Bus reforms. The park is located on land belonging to the Odu'a Investment Company Limited and is held under a lease of 40 years by Persianas Nigeria Limited commencing for July, 2014 as contained in a Memorandum of Understanding between the two parties. The relationship of the two parties was further sealed by Development Agreement in which there are specifications of what the Lessee (Persianas Nigeria Limited) shall construct on the land which in the main is a shopping mall and the financial obligations it must perform to the Odu'a Investment Company Limited. The LASG being desirous of a Bus Park and Terminal have entered into a sublease with the said Persianas Limited in which the LASG is granted at least 38 years of the unexpired residue of the term granted to Persianas by Odu'a Investment Company Limited. The LASG through LAMATA will develop the Bus Park and Terminal and will perform financial obligations to the Persianas as contained in the Deed of Sublease.

Ikeja is a highly urbanized area with an expanding population profile currently estimated at 600,415, occupying a land mass of 49.92sq. km, with a population density of 12,027.5 persons per sq. km The present Ikeja Local Government Area which was split into three LCDAs (Onigbongbo, Ikeja and Ojodu), are highly developed in-terms of traffic flow and commercial activities, which include the local and international airports, the Lagos State Secretariat, several government and private institutions and industries.

Ikeja has a high transportation and road network density made up of primary, secondary and tertiary feeder roads. Some of the primary roads with very high traffic volumes are Obafemi Awolowo Road, Acme Road, Oba Akran Road, Mobolaji Bank-Anthony Road, Allen Avenue, Kudirat Abiola way, Ogba Road, Agidingbi road, Wempco Road, parts of Agege Motor Road, and Ikorodu Road, amongst others. Some of the secondary roads include Oba Akinjobi road, Toyin Street, Unity Road, Isaac John Street, Lateef Jakande Road, Opebi Link Road and a host of tertiary feeder roads.

Preliminary findings of socioeconomic studies being conducted by LAMATA show that Ikeja alone serves well over 130,000 public transport commuters daily with an additional nearly twice that number as pedestrians. Despite this large population of commuters, Ikeja does not have a centralized motor park to serve as a location from which commuters and public transporters can move in and out of Ikeja District.

There are fragmented and poorly sited motor parks strewed all over the District from which commuters and transporters operate. LAMATA identified 12 such individual motor parks located haphazardly at any available spaces along the road, where transporters park, drop, and pick passengers. Data collected from the motor park survey from LAMATA further revealed that Ikeja motor park serves 30 different bus routes with over 1,200 buses, mostly mini-buses (Danfo). These mini-bus operations have been identified as the primary cause of traffic congestion in Ikeja Central Business District through the indiscriminate way they park their vehicles along the major roads. Most of the parks surveyed are not properly planned; they operate arbitrarily, duplicating routes, and as a result of the poorly maintained vehicles, they cause considerable air pollution, and obstruction to free flow of traffic in the District.

IKEJA BUS REFORM OBJECTIVE

It is against the background above, that the LASG proposed to organize the chaotic parking of buses in Ikeja District into a centralized motor park from which all mini-bus operations in and out of Ikeja will operate. It is hoped that this arrangement would improve efficiency and effectiveness of bus operation and improve bus connectivity in and out of Ikeja. The central motor park, when completed, will have such facilities as warehouse, maintenance workshop, Terminal building, control centre, as well as allocated route boarding and alighting points. In addition to the upgrade of the motor park, the bus operations will include realignment of routes, re-fleeting of buses, formalization of operators, monitoring and enforcement of the operation with the use of Intelligent Transportation Systems (ITS). The upgrade will eventually lead to an improved fare and revenue collection system with stable fares in line with the Lagos Mini-Bus Reform plans, and revenue generation for the Local Government Authorities.

TRAFFIC MANAGEMENT IMPROVEMENT

The Lagos state Government has decided to make Ikeja Mega Park a pilot scheme in line with the Lagos State Bus Reform Programme as part of the Mega City Plans for Lagos State, and has started various activities towards achieving the implementation of the programme. The Scheme, when implemented, will bring about order, uniformity and efficiency in bus service operations within Ikeja District. It is intended that the programme, with Ikeja Motor Park as the pilot project, will be replicated statewide. The Lagos State Governor is very keen on introducing the innovative project and sees the implementation of the Bus Reform Programme in Lagos State as a priority project.

Stakeholders such as the NURTW, the RTEAN, the LGA Chairman, private bus owners, and agencies like LAMATA, MOT, LASTMA, and the general public and commuters have been identified and preliminary discussions are already scheduled with members of the stakeholder groups.

FIGURE 12: WATER TANK IN PROGRESS

The proposed Ikeja Mega Bus park/terminal is located on a 10,000Sq.m piece of land along Simbiat Abiola Way, Ikeja with the annex terminal located on a 3,113.15 Sq.m land at Obafemi Awolowo Way, Ikeja a distance of about 600m apart. The project will be sited

on 10,000 m^2 loading and alighting area, with an operational space for 442 buses, operating 30 routes, with facilities for Satelite Bus Stabling Options, rationalized routes and an annex Park for the terminal.

The following facilities will be available at the Ikeja Park:

(a) Construction of bus/ car parking lot and walkway
(b) Construction of a mechanical workshop
(c) Construction of a generator house
(d) Construction of a refuse house
(e) Construction of a water treatment plant house
(f) Provision of Diesel/PMS storage tanks
(g) Provision of Pump Island
(h) Provision of Cable trench
(i) Construction of a Canopy
(j) Construction of a Filling station
(k) Construction of ATM Cash point
(l) Construction of a Terminal building
(m) Construction of Driver's Lounge
(n) Construction of Intercity office building
(o) Construction of a Gate house
(p) Construction of a Police post
(q) Construction of a Fire house
(r) Construction of Drains
(s) Construction of Fence
(t) Landscaping & Horticulture
(u) Traffic system management and signage
(v) Construction of access roads
(w) Construction of covered walkway to the new and existing park

Figure 13: TERMINAL BUILDING CONSTRUCTION IN PROGRESS

FIGURE 14: ATM BOOTH UNDER CONSTRUCTION

On completion of the Terminal, it is planned that no Mini or Midi bus will be allowed to drop or pick passengers in Ikeja environs except at the Terminal. This approach will go a long way to decongest the roads, especially Awolowo Road, Oba Akran Road, Mobolaji Bank Anthony Way and Sibiatu Abiola Road, that at present suffer perennial traffic congestion as a result of the chaotic activities of the mini buses on these roads.

SECURITY AT THE TERMINAL

The provision of adequate security has become a matter of great concern to commuters at motor parks through out Lagos metropolis. Threats to security of persons and properties have developed to very high proportions just as the need for demand for mobility in the ever growing city has developed over the years. The motor parks are a congregation point for travellers carrying valuable goods in demand for inter and intra commuting. Miscreants have sometimes taken advantage of the gathering of such travellers at motor parts and at various times have engaged in nefarious acts to cause harm to persons and the properties of

such travellers. The most notorious and common type of crimes recorded at motor parks in Lagos metropolis in the past, include:

- Theft by stealth: whereby commuters have had their luggage pilfered by touts during loading and canvassing the passengers by touts and unauthorized persons in the motor parks.
- Theft by force: which includes vandalism and violent physical attack usually perpetuated by miscreants and touts on passengers at the parks.
- Sexual harassment at parks by touts and other miscreants during the process of canvassing for passengers and boarding of vehicles.
- Political Violence: This occurs in parks, when politicians engage touts and miscreants at the park to settle political scores on their opponents. The violence also occurs during Union elections, when different factions of the Unions resort to violence. Historically, motor parks are known as fertile grounds for thuggery and rioting and are easily turned into political arenas and become avenues where political thugs and miscreants congregate to settle their scores. The place then becomes very dangerous and unpredictable due to the level of violence and rioting that can erupt without warning there.
- Terrorist attacks: In the past five years, motor parks have become a target of terror attacks, where hundreds of people have been killed by the notorious religious fundamentalists. Such attacks are not known to have taken place in Lagos except for an isolated case at a motor park at the Amuwo Odofin area, where the motor park Chairman was assassinated through a bomb blast during a fracas between warring Union factions. One reason why this kind of attack could easily be carried out was the porous and informal nature of the parks, where there are no security facilities or measures, or perimeter fences, and no functional security office or personnel and demarcation between the park and the surrounding environment. These parks are usually administered by members of the NURTW, RTEAN, who are not known to have adequate knowledge about security and who sometimes are the ones that contribute to the security concerns of the motor parks, in the first place.

The proposed new Terminal has been designed by taking various security issues that will protect the persons and properties of commuters into consideration. The Terminal have a perimeter fence with separate gates for the buses and the Pedestrians. The Pedestrian Gate will have adequate screening tools to detect dangerous items. In addition, there will be close circuit television for monitoring the activities within and around the premises of the Terminal. The Gates and the Terminal will be manned by trained security personnel. The main building shall have a watch Tower on the 3rd floor for panoramic view of the Terminal and its surroundings, in addition to the CCTV, which will cover the entire terminal.

OPERATIONS OF THE NEW TERMINAL

Apart from the parking lot where passengers are dropped or picked, the Terminal has a main building which serves as a waiting hall, as passengers will not be allowed to enter the parking lot except when boarding buses. The waiting hall will be furnished with comfortable seats, offices, ticketing office, security office and conveniences. The entire parking lot and the walkways will be covered with canopies to protect the commuters from weather, and with guide rails to keep commuters in check. Operations at the Terminal and movements and schedule of buses will be controlled using the Intelligent Transport System (ITS). The main Terminal will be supported by an Annex Terminal located about 600m away on Obafemi Awolowo Way at Ikeja.

The 1999 constitution appropriates certain functions to be performed by every Local Government Council, as contained in the Fourth Schedule of the Constitution of the Federal Republic of Nigeria. Part of this function is the construction and operation of Motor Parks. The state of the motor parks in Ikeja, shows that the Local Government Councils have not been able to meet this responsibility. Currently, the parks in Ikeja that were to be managed by the Local Government have been taken over by the National Union of Road Transport Workers (NURTW) who collects revenues from their members and pay certain percentages of the revenue to the Local Government Council. The process of collection and remittance of funds to the LGC is fraught with leakages and funds are not ploughed back for the needed repairs and maintenance of the parks. The lack of attention and care of the Parks has brought them to their present state of disrepair and has made the place a haven and breeding ground for violence, and crime. The New Bus Terminal will have regulated and controlled accounting and auditing system with proper books kept on revenue generating aspect of the business, and an accountable administrative oversight as part of the general cost recovery measures for the project.

IMPROVED TERMINAL OPERATION AND COMFORT

The ongoing construction of the Ikeja Motor parks with all the facilities to be installed will increase commuter comfort at the park when completed. The parks currently being used by the Danfos have no waiting areas, no security to life and property, and they operate haphazardly in an uncontrolled and unregulated manner and environment. They cannot be compared to what is being proposed under the new project.

Despite the fact that the mini-bus system offers a unique type service close to a near “door to door operation,” that cannot be met by the high capacity buses, the menace caused by the inefficiencies in their system and the unkempt type of vehicles in use, make certain category of commuters to shun their services and not patronize them. Their fleet of vehicles are characterized by rickety poorly maintained vehicles that pose danger to their occupants and the environment and to other road users, alike. With the Ikeja bus reform project, this type of vehicles will be replaced with more comfortable buses provided by the LASG. The new buses under the scheme are eco-friendly, air conditioned, and reliable with good maintenance support.

REDUCED TRAFFIC CONGESTION

A major expected outcome of the centralized Terminal Park for the city of Ikeja is reduced traffic congestion, not only in the area directly impacted by the Terminal, but generally throughout the project area. Ikeja is a closely knit city with limited road network. The effects of disruption of traffic flow at a particular point in the loop could propagate a forced flow or traffic standstill to far distant places from the source of disruption of traffic. Part of the intervention to solve the traffic congestion problems in the Ikeja District Area is to locate and troubleshoot such potential points that could lead to disruption of traffic congestion and then introduce traffic solutions that would dislodge the congestion. The twelve unstructured parks scattered around the Ikeja Business District Area were part of such points and with the implementation of the new park the obstacles at these points would have been removed.

The planned removal of about 1200 mini buses and replacing them with 442 new air- conditioned buses that would operate under strict traffic regulations under the Ikeja Mini Bus Pilot Scheme is part of the Bus

Reform Initiative that is intended to lead to a sweeping decongestion of the traffic situation in Ikeja and its environs. It is planned that the new buses will use the Ikeja Bus Terminal and with the high standard of service offered by these buses, motorists will be encouraged to leave their cars at home and commute with the buses. With more commuters joining the mass transit and car owners leaving their cars at home, this will ultimately lead to a reduction of the volume of vehicles on the road, which will result in drastic reduction of congestion along roads where the mini buses had earlier used as motor parks.

BENEFITS OF IKEJA BUS TERMINAL

The new Ikeja Bus Terminal will lead to increased security, better organised operation, improved commuter comfort, improved traffic management system, and reduced traffic congestion, improved environmental condition, and will free Ikeja of indiscriminate parking and crime. These issues have been addressed earlier in this report. The World Bank Mission in its Aide Memoire of December 1, 2016 identified the following issues in the New Terminal that will contribute to the PDOs.

- Improved Mobility:
    - Predictable/affordable fare-collection mechanism to eliminate unregulated and indiscriminate pricing. This would enhance the public travel ability
    - The rate of individual's trip is projected to increase by 20% to the various destinations
    - Introduction of Intelligent Transport Systems the form of advance passenger information systems thereby enabling improved commuter trip planning
    - Faster boarding and alighting to increase individual trip rates by 20%
    - Faster accessibility to improved bus service
- Promote shift to more environmentally sustainable urban transport modes:
    - Promote safety by providing sidewalks
    - Provision of facilities at the parks to enhance the promotion of less pollutants buses as the current danfos CO_2 emission is 489.13 g/km (according to the international Emission Model- IVEM)
    - Reduce emissions from minibuses by 60% with the refleeting of the existing buses
    - Lower cost of operations thereby enhancing predictable future planning
- Improved Traffic Management

During fieldwork, it was learned that a shopping mall will be sited adjacent to the Terminal. The Terminal is also not far from the vibrant computer village in Ikeja. The proposed New Bus Terminal will increase economic activities in the district as a result of free flow and concentration of traffic and economic activities in and around the Terminal.

SOCIAL AND ENVIRONMENTAL IMPACT OF IKEJA BUS TERMINAL

A major issue at Ikeja is the road side parking as there is not enough parking space, coupled with this is the mini and midi buses dropping and picking passengers along the already choked roads, exacerbating the traffic congestion. The conductors of these buses usually solicit for passengers by shouting the names of their routes, thus increasing the noise pollution in the area. An issue commonly overlooked with the indiscriminate parking of buses on the roadside and side walks, is the noise pollution culminating from bus

conductors shouting to announce the availability of their buses and the routes they were plying. This constitutes unbearable noise pollution at the motor parks. The new Motor Park will be fitted with ITS, which will display the various routes of the buses and their availability on an LED board, thus, avoiding the deafening noise from handheld loudspeakers used by bus conductors to solicit for passengers. In the same vein, removing all of the buses to a central location and using well-maintained and serviced vehicles will lead to reduction of the vehicle plying the roads, more commuters using mass transit, reduction in traffic congestion as well as reduction in environmental pollution.

The development of the Ikeja bus terminal will also bring about social and environmental benefits to Ikeja and Lagos at large. The Terminal has facilities such as shopping malls, administrative office, restaurants, recreational conveniences, comfortable passenger lounge and waiting area, and other public services. Thus, the Terminal will be a melting point for commuters and the general public to meet and socialise. The economic development in and around the Terminal will stimulate and create employment opportunities for the youths and lead to reduction of unemployment and curb the feeling of restlessness among the younger generation in the city.

The civil works at the proposed location of the Terminal will result in displacement and relocation of roadside traders, some of who pay rent to the Local Government or to the NURTW, taxi and bus park, all who do not have legal right to occupy the place but who will want to lay a claim hoping for the possibility of a resettlement claim. To this end, continued active stakeholder engagement is advisable with participation of the LGA, the road side traders, and the NURTW, the contractor, and LAMATA. At the ICR, the survey team was assured that such consultation has been on-going.

FIELD REPORT ON IKEJA BUS TERMINAL

PAVEMENT/CAR PARK

FIGURE 15: PAVEMENTS NEARING COMPLETION

A great portion of the bus /car parking lot has been completed; and about 80% completed, while floor slabs were used for the two sections of the walkways which were inspected. One section is almost 95% completed while the other is still at early stages of construction.

COMMENTS ON STATUS OF WORK PROGRESS

S/No.	Infrastructure	Comments
1	Bus/ car parking lot and walkway	A great portion of the bus /car parking lot has been completed; interlock paving stones were used on the car parking lot and have been completed to about 80%, while floor slabs were used in the walkway. Two sections of the walkway was seen, one almost (95%) completed while the other is still in the early stage.
2	Mechanical workshop	Nil
3	Generator House	Structure has been erected, floor slabs to anchor generator has been casted, roof decking pending.
4	Refuse house	Nil
5	Water treatment plant house	Tanks (surface and overhead) have been fabricated, coated with iron-oxide and erected. Borehole is in place and functioning.
6	Diesel/PMS storage tanks	Nil
7	Pump Island	Nil
8	Cable trench	Ducts located but not completed.
9	Filling station	Nil
10	ATM Cash point	Boot still on flooring stage.
11	Terminal building	Ground floor has been completed, props and form works are in place ready for first floor casting. Area for stair case was sighted.
12	Driver's Lounge	Nil
13	Intercity office building	Nil
14	Gate house	Structure has been erected and casting of roof slab was in progress.
15	Fire house	Nil
16	Drains	Sighted in some areas and some are partly covered with slabs
17	Fence	Barb wire fence in place and coated
18	Horticulture	No green areas (lawn, hedges etc) were found only few ornamental plants were sighted, and in good condition.
19	Traffic system management and signage	Nil

Tanks (surface and overhead) have been fabricated, coated with iron-oxide and erected. Borehole is in place and functioning. Cable Trench Ducts located but not yet completed.

FIGURE 16: CABLE TRENCH DUCT AND WATER TANKS

3.2.5 BRT CONSULTATIONS AND MEDIA STRATEGY (COMPONENT 2E)

The subcomponent allocates funds for BRT Consultation, Communications and Media Strategy, to support implementation of a public awareness strategy for the BRT system as well as supporting the development of a framework for public feedback into all elements of design and operation and share specific needs of the users with policy makers and BRT operators. The framework would include stakeholder consultations, public relations, and media strategy.

Key findings on the External Relations Unit are as follows:

- The unit held three (3) enlarged stakeholder meetings, one prior to commencement of implementation, a second one mid term into project and the third meeting was to inform the enlarged stakeholders of project completion
- In order to reach all stakeholders, the BRT corridor was segmented into four and communities along the corridors were hosted to what is referred to as Community forums. There were four such forums and attendance featured local leaders of the communities such as the Baales, faith leaders, CDAs etc. Names of attendees were taken at all forums and their contact details such as telephone numbers and addresses were included in a register.
- In order to promote buy-in and support for the project, the unit used residents in the communities to supply chairs for the events. The unit also served as interface between the project contractors and the community such that the contractors were not hindered during road construction. The contractor CEECC also employed daily labourers from the communities
- There was a potential conflict between the sand dredging/quarrying community around the Majidun and the contractor which was averted by the unit through the tool of consultative meeting that was held with the two parties.
- One key success factor of the BRT Mile 12-Ikorodu corridor was in the support that LAMATA enjoyed with critical stakeholder communities such as the Wetland Community Association around Idera along the corridor. The wetlands area is said to cover a wide expanse of territory and traverses three states of Lagos, Ogun and Ondo and is a natural flood plain recording devastating

floods. The Wetland Association thus feared that the road construction would obstruct the natural flow of the river along natural paths and cause flooding to become even more excessive. The community was also concerned about the channeling of water that would be evacuated via whip holes on the road directly to the surrounding ground and that this would contribute to flooding. The Association's Chairman happened to be an engineer and the unit engaged him in informative technical discourse, providing engineering plans and details of planned drainage system such that the community's fears were allayed and they were convinced that the project would not contribute additional flooding of the area. It was thus easier to secure support from the community as a whole. The lesson from this to the unit was that when people are provided quality information and engaged as partners in development they are more willing to support the project. Engagement some residents were engineers –drainage was an issue and the selling point was the diversion of drainage away from them.

- Although the PAD retained the tool of BRT Parliament which was used extensively during the LUTP 1 to sensitise stakeholders on the LUTP 1, this tool had become unnecessary in the LUTP 2 because the public had become very familiar with LAMATA.
- In order to continue to engage with the public LAMATA commenced a radio programme styled LAMATA 360 every Tuesday 8.15 am to 9 am. The programme is aired on the Lagos Traffic Radio 96.1 FM. The programme has is currently on its eighth (8^{th}) presently. The public is allowed to call in and to ask questions and on the average in the 45 minutes of the programme and there are between 6-8 callers. The flavour of the calls are mixed, some complimenting LAMATA while some raise issues of road obstructions and some raise questions that concern LAMATA sister-agencies including LAGBUS, LASTMA etc. The radio programme goes a long way in giving the public information and also passes on information to the related agencies that issues raised concern and reverts to the public when answers are provided.
- LAMATA invites sister-agencies to participate in the radio programme and some have responded while LAGBUS which also operates on the BRT Ikorodu-Mile 12 corridor and to which a good number of queries are raised on the radio programme has not yet responded to the invitation.
- A key lesson that the unit has learned from the radio programme is that people want to be informed about activities which impact their lives negatively or positively and that suggestions from them can be useful to Government in fine-tuning some of their actions.
- Another tool used by the LAMATA to keep in constant close touch with stakeholders and to disseminate information is the LAMATA website http://www.lamata-ng.com/ . The website though still online, is presently being reconstructed to make it more user-friendly and to migrate it to a website development software that can be used in-house as LAMATA believes in-house capacity should be developed for this purpose rather than continue to use external consultants.
- LAMATA uses the Facebook tool to interface the public and engage with its customers. The Authority does not use the twitter handle but it uses the WhatsApp application and these two tools have proved to be beneficial because they are contemporary methods which the public finds easy to use.
- Although LAMATA is mainly a regulatory agency and not a transport operator, the brand LAMATA seems in the mind of the public to epitomize operations and so the public engages LAMATA actively on operational issues and the unit finds that it is an intermediary between the public and the operators and have had to escalate complaints to the operators rather than directing the public to complain directly to the operators. This pragmatic approach has turned out to be one of the External unit's best practices. The public wants their transport issues resolved and do not want to be sent on the the merry-go-round of who is the responsible agency.

- The trust that LAMATA External relations' unit has forged with the public has help in resolving issues that would have been intractable. For example, when the BRT bus fare was to be increased, the Trade Union Congress (TUC) wrote to the bus operator Primero threatening that a picket action was imminent, the unit fostered a meeting of stakeholders (TUC, Primero and LAMATA). The TUC was taken round the Primero Depot to see the operations at the depot. They were engaged in a profitable discussion about cost of buses, the fleet size, bus replacement cost, the exchange rate deferential with the current economic recession, the astronomical increase in diesel fuel price and the attendant spiralling consequences and in particular they learned about the cost of funds (interest rate on loans). At the end of the engagement the TUC agreed to shelve the picketing. The organised private sector and the media were hard wont to say that the increase was unjustifiable although the TUC would not make a pronouncement that the increase was justifiable either because they feared a backlash from the public which naturally would assume they had been compromised.
- The unit also engaged successfully with the LEA and SUBEB because a school fence along the corridor had to be pulled down. The said fence was reconstructed further back and away from the road.
- Some market associations at Mile 12 and Ikorodu markets had to be relocated while some other local transport groups operating the "danfo" buses were also relocated. The case of the Omolere Plantain sellers' Association at Mile 12 will be discussed under the assessment of safeguards later in this report, but suffice here to say that the LAMATA engaged this association and secured their consent to being resettled in another area even though the association members had become resettlement wary and weary having been moved first from far away Tejuosho market in Yaba to Mile 12 in the first instance and having to move once more to another location. The peculiar issue was that the movement from Tejuosho had the official stamp of the Lagos State Ministry of Environment. The space that was finally decided on was in a swampy area with little or no road access and LAMATA had to provide road access as well as engineering works to provide a hard surface structure for the swampy are. This particular exercise did not appear to go as well as planned from the point of view of the stakeholders both the Omolere Plantain Sellers' Association and the Mile 12 Community Development Association which was the host community that received the "re-settlers."
- The external relations unit did not leave out the Vulnerable groups in information dissemination. The Lagos State Office of Disability Agency (LASODA) was contacted and it was with the input of this agency that the decision was taken to construct ramps on the footbridges as well as stairs which has actually turned out to be a best practice in the transportation history on Nigeria because it is a first.
- At the time road barriers (metal grids and mesh) were to be constructed to prevent pedestrians from crossing the road around the bus stop areas as a safety measure, the cart pushers were up in arms and objecting to the barriers, but with the ramp, the issue became moot. The barriers and the ramp impacted positively by reducing road accidents around the bus stop areas.
- There are 4 staff members in the unit, two senior and 2 junior. The unit would rather have 2 senior, 1 middle level and 1 junior staff. The unit would also want to recruit an IT specialist to manage the website and all social media platforms in-house so as to ensure real-time engagement with the public.

3.2.6 UPGRADE AND RATIONALIZE SYSTEM OPERATIONS (COMPENT 2F)

The subcomponent was to finance services and works to upgrade the existing service plan framework and rationalize the systems operation including upgrading systems planning, developing a comprehensive

management framework, and rationalizing system operation. Under this component, LAMATA commissioned a Consultancy Service for the implementation of Intelligent Transport System (ITS) / Traffic Management on Mile 12 – CMS corridor, Bus Franchise Scheme corridor and the BRT Extension to Ikorodu. The result of the study was used to prepare the Requirement Specification for the procurement of Fleet Management and Real Time Passenger Information Platform in Support of Bus Operations in Lagos State (BRT Mile 12 – CMS , BRT Extension to Ikorodu and Bus Franchise Scheme Corridors). The summary of the Design for Systems Study is contained below followed by the findings at ICR stage of the status of deployment of the ITS.

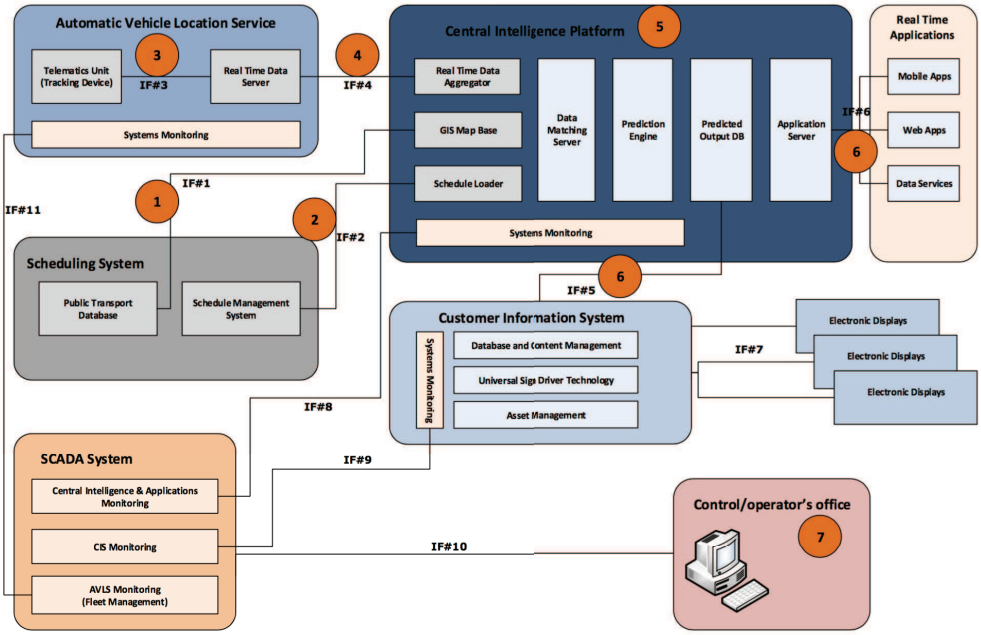
3.2.6.1 DETAILED DESIGN AND COMMMISIONING OF INTELLIGENT TRANSPORT SYSTEM (ITS)

LAMATA commissioned the consultancy service for the implementation of ITS. The project comprised a detailed technical design focusing on systems integration and technology specifications as would be found necessary so as to effectively monitor and gather information on the BRT/BFS operations. The service will be deployed on the Mile 12- CMS BRT corridor, the Mile 12-Ikorodu BRT extension corridor and the BFS corridor.

The following are the more salient findings of the ITS Design study:

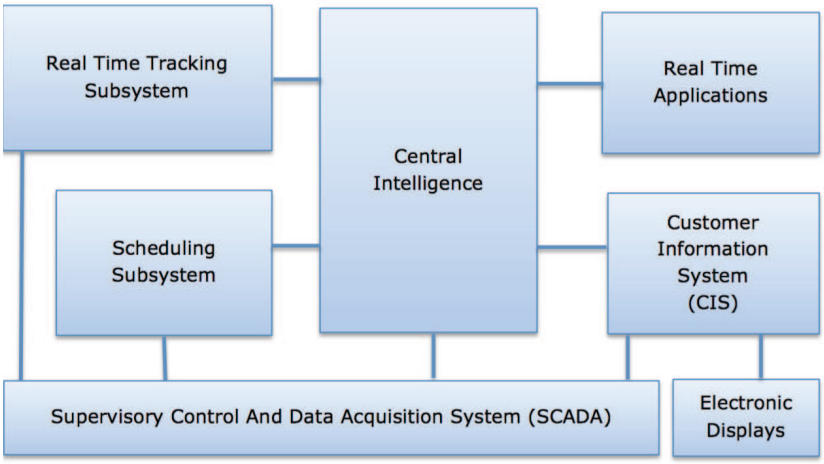
- The ITS is to be used by business function managers, technical analysts, systems architects, test engineers, project managers and operations team and the scope of the solutions covers all ITS systems and applications forming part of the Real time Passenger Information platform (RTPI), Communications system, the IP Video surveillance systems and the adaptive traffic signal solution recommended for implementation at key junctions along the Ikorodu road. RTPI consists of a system of tracking applications and systems used to monitor the status quo of the roads. Secure communication systems having been put in place to capture voice and video data, live recordings of traffic will also be taken via cameras to enable observation via an IT control centre.
- The Traffic management solution consists mainly of design improvements to the currently proposed signalized junction solution realized through the introduction of artificial intelligence. The intelligence proposed is achieved by integrating traffic detectors close to the junction to sense traffic situation in real time and communicate actual volume information to the traffic controllers to activate a predetermined response.
- For the onboard Bus ITS (BusNET), a modular architecture design principle was adopted following best practice. By splitting the overall solution into functional modules which are linked by open standard interfaces, each of the functional module can evolve or be modified in the future without significantly altering the architecture. The most notable benefit being that the risk of relying on a single major systems supplier is minimized and potential cost that may be necessary to replace a complete platform can be avoided since each module can be independently upgraded or replaced if required. Tis design principle introduces systems integration challenges which can be managed effectively with good systems partitioning, use of standard interfaces and introduction of good systems monitoring solution.
- A number of electronic displays are proposed for installation at bus stops, bus stations and within buses. It is anticipated that a range of displays technologies will be employed including LED and TFT displays of various sizes depending on location and use. Some of the display will feature the ability to display media information, graphics as well as text for communicating bus arrival times, status information, disruption information and possibly advertisement to the commuting public.

FIGURE 17: BUSNET SYSTEMS ARCHITECTURE: SOURCE: LAMATA SYSTEMS DESIGN REPORT



- In order to make predictions, the system first collected data on the different buses, their schedules, their routes, and journey times and so on. This data was then registered into the central intelligence system. In addition, real time data such as vehicle details, tracking device details, driver details, service details, journey number, service pattern for the day and time stamp are collected. These data are sent at regular intervals (20 seconds recommended depending on data cost) in proprietary format to the real time data server. Both static and semi-processed data are aggregated by the central intelligence data aggregator. In central processing, central processing takes place within the central Intelligence platform and starts with matching of specific journey schedules with the associated live journeys by the Data matching Server. This is promptly followed by further processing of matched bus services by the Prediction Engine in order to generate real time predictions calling time at predetermined stops/ terminal for all services matched in real time.
- From these terminals systems configuration can be altered, data can be updated, faults can be raised and overall performance of the system as well as KPIs can be monitored. In the final step in the process, the key back office systems such as the fleet management system and monitoring systems are run as applications available from system terminals registered on the secure network. From these terminals systems configuration can be altered, data can be updated, faults can be raised and overall performance of the system as well as KPIs can be monitored.
- The AVLS system (tracking subsystem) consist of a dedicated Telematics Control Unit (TCU) to be installed within each bus and an associated real time data server to which it directs information about current journey, vehicle status and location tracking information securely over mobile wireless network and in real time. Additionally, the Telematics Unit will provide a user interface for the driver to input his details and confirm the schedule for each journey and for all journeys throughout the day.
- Information relating to service delays and disruptions as well as real time information about bus arrival times are communicated to the electronic displays by the CIS for passenger benefit. Mobile applications and websites can also be used to provide information especially to those who are about to or planning a bus journey.

FIGURE 18: REAL TIME PASSENGER INFORMATION PLATFORM OVERVIEW: SOURCE LAMATA ITS DESIGN STUDY



- The system will consist of several IP based Cameras installed at strategic locations within buses, along routes and at major bus stops and terminals. These will all be linked up by a dedicated IP communication network such that they can stream their feed live and be controlled from the Control Centre. In addition, the solution will also serve a security purpose and help to minimize vandalism of ITS asset. The IP Surveillance System shall cover BRT buses, BRT lanes, public areas, such as boarding areas and entrance/exit of bus stops, terminals as well as bus depots. Requirement cameras should be capable of High Definition image capture as well as Infrared functionality to be able to capture good quality picture even in low light darkness conditions. Storage is required locally for quick retrieval while extended storage of up to 91 days online will be provided in the monitoring centre. The stored video can be used for several purposes including being establishing the cause and play out of certain recorded events.
- All the cameras, transmission equipment and management equipment used in video monitoring system shall be connected to Uninterrupted Power System for power backup when normal power supply breaks down. The power backup time will be up to 2 hours and will be linked to alternative power source such as solar. All cameras used will have low power requirements. The video surveillance system will comply with local and international data protection regulations. To warn people that they are being monitored, fixed signs shall be set up with CCTV notice.
- LAMNET will be the secure communications network infrastructure linking all the key Intelligent Transport Systems that will be delivered to support the bus operations systems and technologies within Lagos. This communications network will be an amalgamation of smaller networks based on a range of network topologies and technologies including LANs, leased lines, and fibre optic links, radio links, VPN, APN and mobile operator's network. These technologies and individual network will be securely integrated to form LAMNET. Through LAMNET, seamless interconnection and network resource sharing among various ITS systems will be easily achieved. All that will be required by any device to link into LAMNET will be a single entry point that guarantees secure access to all resources. In terms of coverage and geographic sparseness, LAMNET will be available at all BRT corridors, bus stops and major terminus; Bus Franchise Scheme Corridor; Control office where live video monitoring and ITS systems monitoring will be taking place. This is anticipated to be based inside LAMATA office.
- All ITS system once implemented will be physically secure. This will be achieved through ensuring that valuable equipment are installed in secure locations and where possible in locations where the threat of vandalism and theft is reduced. Security is achieved through the creation of a

dedicated private network specifically for ITS use. This private network consists of multiple leased networks linked by Virtual Connections or VPN to form a single coherent and transparent network. As the ITS equipment are all linked via this network, their communication and data exchange is kept private and secure. Furthermore, the network is protected by specially configured firewalls and exchange of private encryption and decryption keys.

- All systems put in place in these corridors will be scalable.
- Three (3) bus depots that have been identified; Ketu depot, Majidun depot and Ikotun depot for connectivity.
- ITS developments include Variable Message Signs, Urban Traffic Control System, Closed Circuit television, Car Park Monitoring, Traffic and Travel information, Passenger Information system, etc. There is a big future of ITS given the challenges that face transport systems in most countries. Whilst monitoring and disseminating information will continue to develop, it is the ability to quantify performance and exert controlling influences that would appear to be the most worthwhile features of ITS and a means of tackling transport problems.

3.2.6.2 FINDINGS ON INTELLIGENT TRANSPORTATION SYSTEM (ITS) IN OPERATION

LAMATA has commenced installing ITS on the BRT buses. The ITS is an advance passenger information system, will enable improved commuter planning system, bus scheduling and availability, improvement of time management of bus drivers, and accessibility to improved bus services to commuters. It is planned that the programme will be fully operational at project end in May this year. The present status are as follows:

- Installation of the ITS on the buses has been commenced and staff training is on-going.
- LED displays that show arrival and departure time of buses are in the process of being mounted at each bus stops.
- At ICR, as at the second week in May 2017, altogether, 156 buses have been fitted with ITS. The contractor is working at full throttle to have all the 434 buses fitted with ITS, ready for commissioning by the Governor at the end of the month. These buses operate along the 19 Service routes and they are linked centrally to the Bus Control Centre.
- The 19 Service routes on which the ITS program will be deployed have been distributed for central coordination and management into zones follows:
    - Ikorodu Zone: 114
    - Agric Zone: 114
    - Mile 12 Zone: 89
    - Ojota Zone: 73

    Total: 390

- It is intended that the Mile 12 – Oyingbo; Ketu-Oyingbo; Ojota-Oyingbo and Fadeyi -Oyingbo will be included in the service routes above.
- An Application (App) meaning a computer programme that will be downloadable to mobile devices and which will show bus availability and schedule has been developed and is being tested and is available for viewing at the LAMATA office. A demonstration of this was witnessed at the LAMATA office during the ICR field survey.

- One of the initial challenges was delay in real time synchronisation and display on the LED. This was traced to the low data package that was procured by the contractor and has been addressed and will be overcome in the course of pilot testing and commissioning.
- The State Governor, Mr. Akinwunmi Ambode has shown commitment that the project meets the target date of completion at the end of the month of May, 2017. The Governor, together with the MD of LAMATA, Engineer Abiodun Dabiri, had a test run of the system on a bus ride on April 28, 2017.
- In order to meet the set target, the ITS is being fitted at the rate of about 40 systems on the buses per week, and it is hoped that all the 434 buses would have been fitted with the ITS by the end of May, 2017.
- Training is being conducted for staffs of the Bus Control Centre, bus operators i.e. drivers and Operations staff at different levels. The training, which encompasses on the job component, is comprehensive to ensure that the trainees are all capable of operating and managing the systems and interfaces supplied as part of the ITS Operations programme.

The specific features of the ITS for the BRT buses are as follows:

- Automatic Vehicle Location Systems (AVLS) which is used for real time tracking and location monitoring of buses.
- Electronic Displays and Customer Information System which is an electronic display at all bus terminals and selected bus shelters to show the estimated arrival time of buses at the shelters and to enable commuters make informed decisions about their travel plans.
- Scheduling Software installed at the various control centres and to be used by the operator in the scheduling of bus services to ensure efficiency in operations.
- Fleet Management Suite which is used for the real time location monitoring of buses on map outlines, real time monitoring of buses schedule adherence, status and fault monitoring, as well as data analysis and report generation. Cancelation of scheduled bus services can also be made from the fleet management suite.
- Real Time Applications and Virtual Channels which comprise of a website, mobile applications as well as an SMS departure service through which commuters can obtain information about bus locations and arrival time at various bus shelters.
- Bus Control Centre which is the centre from which the ITS will be controlled and from which the Real-Time Monitoring of buses along the various corridors can be done.

3.2.6.3 PERFORMANCE OF INSTALLED ITS IN THREE MONTHS BEFORE AND AFTER

In 3 months since the commencement of deployment of ITS, findings point to a more efficient system as can be garnered from the Table below which was obtained from LAMATA.

TABLE 29: ITS RAPID IMPACT EVALUATION

Item	Pre ITS	Post ITS	Percentage	Remarks
Number of buses deployed from Majidun Depot per day	320	303	-5%	5% decrease attributable to more efficient route planning
Number of service routes	14	33	57%	57% increase in route coverage and efficiency of operations
Average waiting time of buses	7	4	-75%	75% decrease as a result of efficiency and monitoring of operations
Average waiting time of passengers	31	26	-19%	19% decrease as a result of improved operational efficiency
Average litres of fuel consume per month	1,115,809.28	1,093,542.19	-2%	2% decrease as a result of decrease in number of buses deployed to achieve optimum efficiency of operation
Average headway of buses in mins	7	13	46%	46% Increase achieved through combination of data about location, timing, and response call from buses
Average time of deploying all the buses	130	120	-8%	8% decrease: Efficiency in operational management of the fleet as a result of better communication and fleet management
Average number Minor accident	131	125	-4.8%	4.8% decrease as a result of better vehicle movement and parking at the terminals
Average recovery time of breakdown	120	60	-50%	50% decrease as a result of monitoring of buses movement on the ITS and better response time to distress call from drivers
Average actual kilometre covered by bus per month	1,832,377	1,584,098	-15.7%	15.7% decrease as a result of better route assignment and coordination of movement of buses and avoidance of detour from assigned routes
Average number trips per bus	5	6	16.7%	16.7% increase in efficiency of operations and fleet management and coordination leading to reduction in turnaround time for buses.

3.2.7 THE TBS TERMINAL

The LASG took a strategic decision to upgrade the Tafawa Balewa Square (TBS) bus stop to a Bus Terminal. It is of note that the former MD of LAMATA became the Commissioner for Transport at the time the decision to upgrade the TBS was taken. This project was not funded under the LUTP2 but it was funded by the LASG but it involved the BRT LUTP funded project because the TBS Terminal extended the BRT Ikorodu-CMS to TBS. LAMATA was involved in supervision of project and assisting in aligning the project with the STMP and Bus Route Network policy. The Consultant took a decision to survey the TBS terminal and report on it as show case of LAMATA's organizational capacity to collaborate and coordinate transport projects among a myriad of stakeholders within Government.

- The Tafawa Balewa Square (TBS), named after the first Prime Minister of Nigeria was originally called the "Race Course," because the place was used for horse racing. It is situated on a 14.5 hectare (35.8 acre) piece of land in Central Lagos Island. Reconstructed in 1972, the TBS is bounded

by Awolowo Road, Cable Street, Force Road, Catholic Mission Street, and the 26-story Independent House, built in 1963 in memory of Nigeria's independence on October 1, 1960, and was then the highest building in Nigeria.

- Some of the facilities at the square included: a shopping centre and an Arcade, Airline Travel Agencies, restaurants, with the Eastern side being used as a parking lot and the western side as a bus Terminal before the present reconstruction to accommodate the ultra modern BRT Terminal.
- The TBS Terminal is an extension of the Ikorodu - Mile 12 to CMS Corridor which was added to the corridor under the LUTP2 and was completed and commissioned by the Lagos State Governor, Governor Akinwunmi Ambode on the 24th of March 2017.

The newly reconstructed TBS Terminal include the following facilities:

- New lay-by in three rows along the whole length of the terminal with one lane for all BRT buses, one lane for LAGBUS and the other lane for NURTW and yellow buses. Each Lay-by is provided with an additional lane for buses to leave the queue and pull out of the Terminal after loading;
- Provision of loading platforms to enable physically challenged commuters and the elderly to enter and disembark from buses;
- Robust hand rails to keep the commuters in queue and prevent passengers straying into the lay-by;
- Two number offices; one for the Terminal manager and the other as control room;
- Three ticketing booths and sixteen shops to serve the Terminal as no road side hawkers are allowed in the Terminal;
- Reserved area as parking lot for registered taxis and another for private cars.
- A waiting area for commuters with comfortable seats that can accommodate about 25 passengers;
- Provision for bright street lights to enhance the security of the Terminal at night.
- The waiting area and the Lay-by are covered with canopies to protect commuters from bad weather; and
- The Terminal has provision to accommodate sixteen busses at the Lay-by.

3.3 COMPONENT 3: IMPROVEMENT OF LAGOS STATE METROPOLITAN ROAD NETWORK

This component is designed to improve the efficiency of the use of existing road space, reduce vehicle operating costs, enhance the operation of buses, and improving road safety for vehicles and pedestrians, by improving the quality of roads. The existing pavement management system will be used to monitor the structural performance of roads under LAMATA's care as well as the BRT routes, thus enabling rationalization of maintenance interventions. This will evolve into a road management system upon which ultimately the state road network would be managed. The component includes the following elements:

TABLE 30: COMPONENT 3-ORIGINAL AND REVISED COMPONENT TERMS

S/N	Original Sub- components details	Revisions
3.A	Routine maintenance: These are maintenance activities of road surface and drainage systems to be executed by small scale labor based contractors covering the 532 km of the Declared Road Network. A key objective of this sub-component is enhancement of job creation and poverty alleviation. The sub-component is financed by $25 LSG funds.	The two subcomponents were not financed under the LUTP as the funding was to be from the LASG which has been undertaking routing maintenance on LASG roads.
3.B	Periodic maintenance and pavement management system: This component will finance bituminous overlays of 12 km of strategic roads which are degraded but structurally still intact to ensure that they remain in a maintainable condition. Such works are executed by medium scale contractors. This sub-component would also support the pavement management system to generate appropriate road management reports. Activities will include road data collection and analysis, capacity building including upgrading of the current system to a road management system. Sub-component is financed by $14M IDA funds	
3.C	Rehabilitation: This component will finance repair works on 5 km of strategic roads in the metropolis identified to be structurally damaged. Such works are carried out by large scale contractors, financed by $11M IDA funds.	None

3.3.1 REHABILITATION

Two roads were undertaken under LUTP2 component 3C and these are the Wempco Road in Ogba, Lagos and the Akin Adesola Road in Victoria Island, Lagos.

3.3.1.1 WEMPCO ROAD

The upgraded and rehabilitated WEMPCO Road is a 1.9 km dual carriageway road, with rigid pavement, asphalt wearing course, concrete median, covered drains, lay-by with two lanes in both traffic directions. The road spanned between Lateef Jakande Road to Ijaye Ogba Road with all necessary furniture to cater for all road users including the physically challenge road users, installed.

FIGURE 19: CROSS SECTION OF WEMPCO ROAD

The corridor has a defined walkway that is raised above the pavement with ramped access for the pedestrian including the disabled. There were road markings, bumps to slow down vehicles approaching the U-turns or junctions since the road is situated in a highly populated area which a popular market on the side of the road. Road signs to guide road users, zebra crossings for pedestrians, and lay-by for parking were erected on the road. Noticeable were the active commercial activities on both sides of the road by formal and informal business owners that have recently sprung up since the completion of the rehabilitation works.

TABLE 31: WEMPCO ROAD INFRASTRUCTURE AND FURNITURE

	ITEMS	BASELINE SITUATION	REMARKS FROM FIELDSURVEY
1	PAVEMENT	Repair of defects and rehabilitation of carriageways	(a) The pavement is completed with asphalt wearing course and in perfect condition from Lateef Jakande Road to Ijaye Ogba Road junction.
2	DRAINAGE	Repair and rehabilitation of road surface drainage systems	(b) The drainage structure is completed and in perfect condition. A two layer drainage network was provided through the road upgrade. Incidence of flooding and water ponding at the end of Ijaye Road which was prevalent before the rehabilitation works had been adequately addressed and at the time of the field survey water drainage from the rehabilitated road appear to have been perfectly executed. Routine maintenance is however required at some locations due to siltation.
3	JUNCTION MANAGEMENT/ SIGNAGE	In place with recommended facilities	(c) All the road signs, traffic lights, lane marking Zebra crossings, paintings of the median were still clearly visible. There will be the need for routine maintenance to sustain current visible condition of the signage.
4	DISABLE PROVISION	Rehabilitation and construction of road shoulders/pedestrian walkways	(d) Shoulders/lay-by, pedestrian walkway, and ramps were provided from start to the end of WEMCO road. All these provisions were well marked out along the corridor for ease of access of physically challenged road users.
5	PEDESTRIAN ACCESS PROVISION	Rehabilitation and construction of road shoulders/pedestrian walkways	(e) Walkways and cycling lanes were provided on both sides of the road and were in good condition with the exception of 2 spots where the concrete cover needs to be repaired.
6	ROUGHNESS OF ROAD	Smooth and motorable and completed to specification	(f) The road was observed to be smooth as there were no potholes or ditches.
7	STREET LIGHT	Refurbishment and provision of street lighting.	(g) All except one of the street lights were in good working condition except the one opposite the Triple Cross School at the zebra crossing, which did not have a bulb and the glass encasement was broken.
8	BUS STOP	Available	(h) Two bus stops were spotted at Alhaja Abibatu Mogaji and Agbalajobi bus stop.
9	SPEED CONTROL	Provisions of speed breakers and zebra crossings.	(i) Speed bumps were observed on the road for both carriageways i.e 3 each per direction.
10	BRIGDE AND DECK ON PILE	Nil	(j) NIL
11	LANDSCAPING	Nil	(k) NIL
12	BARRICADES		(l) No Barricades only concrete median are available

SOCIOECONOMIC SURVEY FINDINGS

93 % of the sample on Wempco Road use the road regularly both before and after the rehabilitation and could easily attest to the time the rehabilitation was on-going 66% of respondents affirm that the rehabilitation has brought a substantial reduction in travel delays and hardship and 29% affirm to somewhat reduction of the delay and congestion on the road. On travel times the respondents hugely affirm reduction in travel time on the road with an overwhelming assent of 89%. The respondents also

affirm that accident rate has decreased on the road at 76% assent. A little over half of the respondents know LAMATA as the agency who supervised the road rehabilitation.

3.3.1.2 AKIN ADESOLA

The Akin Adesola road, a 1.65 km road was rehabilitated and upgraded to a dual carriage road, provided with covered drainage as walkway in both directions and separated by concrete median grids and provided with the necessary road furniture. The rehabilitation of the road not only eases the traffic flow in the area, but also supports the commercial and economic activities on both sides of the corridor.

FIGURE 20: CROSS SECTION OF AKIN ADESOLA ROAD

Pedestrians were adequately provided for on the road as covered drainages with reinforced slabs serve as walkway in both traffic directions of the road. Also as part of safety measures for the pedestrian, zebra crossings were marked and clearly visible. Pedestrians are yet to be educated to cross the road at designated places with zebra crossing markings, while motorists appear not to be adequately informed to respond to the need of pedestrians waiting at zebra crossings as an indication of desiring to cross the road.

Generally, the pavement, traffic light, signals, road marks and drainages are in good condition from the beginning of the road to the end of the corridor, except for a few collapsed drainage coverings and some few damaged street lights.

Prior to the rehabilitation works on the road, there was notable incidence of flooding and ponding on the road which impeded the serviceability of the road. This defect has adequately been addressed through the rehabilitation works carried out on the road. The table below provides an insight into the impact of the rehabilitation works carried out on the road.

TABLE 32: AKIN ADESOLA ROAD INFRASTRUCTURE AND FURNITURE

S/No.	Items	Baseline Situation	Remarks From Field Survey
1	ROAD PAVEMENT	Repair of defects and rehabilitation of carriageways	• The carriageway was completed with rigid interlocking paving stone pavement and is in good condition, with smooth wearing course.
2	DRAINAGE	Repair and rehabilitation of road surface drainage systems	• The upgraded covered drainage structure is intact. Some level of siltation were noticed reducing the channel flow capacity of the road. Few concrete covers need to be replaced. A

			network drainage has been provided to avert the incidence of perennial flooding and pooling which was a major occurrence at project begin.
3	JUNCTION MANAGEMENT/ SIGNAGE	Provision of traffic system management measures	• Traffic lights at Sanusi Fafunwa junction, Adeola Odeku junction, Coscharis Junction and bar beach junction were in good condition with traffic officers available to direct and manage traffic flow. • Zebra crossings marked at various strategic locations were provided for but require re-painting and maintenance. • Lanes were marked but require maintenance and repainting. • Road signs were put at strategic locations to guide road users and were found to be in good condition
4	PROVISION FOR DISABLED PERSONS	There was no prior provision for this at baseline	• Ramps for physically challenged road users were provided at all junctions to aid the passage of disabled persons on wheelchair.
5	PEDESTRIAN ASSESS PROVISION	Rehabilitation and construction of road shoulders/pedestrian walkways	• The drainage cover serves as the walkway for pedestrians. The maintenance holes on the drainage covers pose challenges for female road users who might find it difficult to walk on the slabs because of the holes
6	ROUGHNESS OF ROAD	Motorable of road and aquaplaning	• The road surface is smooth with respect to the interlocking paving stones system, motorable surfacing, low water retention thus leading to reduction in aquaplaning.
7	FLOODING AND WATER POOLING	There was incidence of constant flooding and water pooling on the road prior to project start up	• At the time of fieldwork, no flooding and water pooling was observed and an effective and functioning network of drainage was introduced through the rehabilitation works on the road.
8	STREET LIGHT	Refurbishment and provision of street lighting.	• Street lights were adequately provided for and appear to be in good working condition at the time of fieldwork carried out on the road.
9	BUS STOP		• NIL
10	SPEED CONTROL		• NIL
11	BRIGDE AND DECK ON PILE		• NIL
12	HORTICULTURE AND LANDSCAPING	Prior to the intervention, the drainage and the road was in a state of general disrepair, and degraded within a high-brow area of Victoria Island	• The median was landscaped with greens and was noticed to be well maintained. The general environment needs upgrading through landscaping. • A hydrant installed by the Lagos State Fire Service was observed.

SOCIOECONOMIC SURVEY FINDINGS

89% of respondents use the rehabilitated road regularly and can attest to status quo ante and current. 53% affirm than the rehabilitation has brought about substantial reduction in traffic congestion while an additional 36% attest to a fair reduction in traffic congestion. Also a total of 92% attest to travel time savings on the road. The critical mass of respondents said that prior to the intervention it took an average of between 30-40 minutes to traverse the road but after the rehabilitation the time has been cut down to

between 10-20 minutes making a time saving of about 10 minutes. Accident rate is also adjudged as reduced. The respondents at 77% of sample are very aware of LAMATA as the implementation agency.

3.4 COMPONENT 4: PROJECT MANAGEMENT AND MONITORING

TABLE 33: COMPONENT 4

S/N	Original Sub- components details and funding	Reviewed sub-component details if any
4.A	Technical assistance, equipment, vehicles, office equipment, and other operational support for implementation. Subcomponent is financed by $2.5M IDA funds.	None
4.B	Institutional, technical, procurement, and financial audit, financed by $2.5M IDA.	None
4.C	Outcome monitoring of transport and social impact indicators, environmental impact indicators and capacity development indicators, financed by $2M IDA	None
4.D	Air quality monitoring along BRT corridors. This includes purchasing of new air quality monitoring equipment, financed by $2M IDA.	None

Sub-components 4A and 4B are for technical assistants in form of goods and institutional, technical, procurement and financial audits which will be assessed under Bank and Borrowers' performance as well as in their respective headings under the institutional framework on LAMATA.

The focus of this section is on Components 4C and 4D which relate to environmental and social safeguards of the LUTP2. Component 4C will evaluate the implementation of the LUTP2 as regards the Outcome monitoring of transport and social impact indicators, environmental impact indicators and capacity development indicators. It is particularly to examine the social safeguards aspects of the project as well as social impacts of project on the gender and vulnerable groups and other stakeholders. Component 4D will monitor the environmental impacts and safeguards in particular the Air quality monitoring along BRT corridors.

Several activities were undertaken to ensure that projected affected persons were not impacted negatively by the BRT extension project. These activities included conducting a pre-project survey and enunciating a Resettlement Action Plan (RAP) and implementing the same. The Consultant at implementation completion also undertook a survey to evaluate the outcome of the RAP and stakeholder's perception of the outcome.

3.4.1 SAFEGUARDS: RAP IMPLEMENTATION OF MILE 12 TO IKORODU TOWN BRT SCHEME

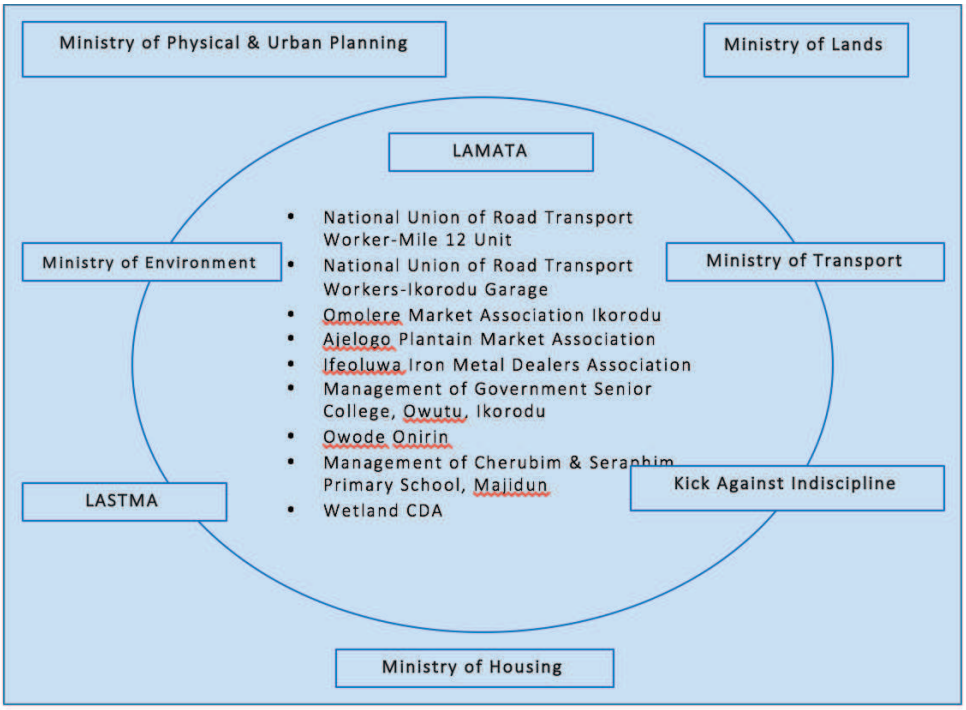
3.4.1.1 SUMMARY OF RESETTLEMENT ACTION PLAN (RAP) MILE 12 TO IKORODU TOWN BRT ROUTE DEVELOPMENT

Pre-project RAP was undertaken by LAMATA in respect of the BRT extension project and a resettlement plan was prescribed. In fulfilment of the objectives of the study, the RAP gave detailed data on the profile of people and assets that would be affected by the project. The Project Affected Persons (PAPs) were enumerated and a comprehensive list was prepared. Restitution measures with requirements and procedures to ensure that the PAPs are not left poorer due to impacts from the project were recommended.

In undertaking the study, the corridor was segmented into 8 sections namely; Ikorodu, Ikorodu market, Agric, Ogolonto, Ajegunle, Owode, Owode market and Mile-12 and a profile of the entire area was given with comprehensive details:

- That there are about 33 feeder roads (including streets, lanes, drives, closes) that have links to the corridor on the inbound lane (Mile 12-Ikorodu) and on the out-bound lane there are about 40 feeder roads linked to the corridor.
- That the corridor also crosses some water bodies, including tributaries of Lagos Lagoon (e.g. Majidun Creek and Ogun River).
- There are 15 notable bus stops namely: Mile-12, Owode- Onirin, Weigh Bridge, Novel Drugs, Irawo, Thomas, Ajegunle, Itowolo, Idiroko, Majidun, Ogolonto, Oja, Agric, Aruna and Ikorodu.
- The stakeholder analysis of interests along the corridor listed a substantial and varied number of stakeholders as shown in Figure 5 below. Adequate consultations were made with the stakeholder-groups along the corridor as well as with government and traditional institutions.

FIGURE 21: STAKEHOLDER MATRIX MILE 12-IKORODU CORRIDOR



- Total numbers of PAPs along the corridor were 2231 and 53% of this population were females. There was a preponderance of females at all sections except at Owode market and Mile-12 section where males had the lead of 62.7 and 65.8% respectively. Proportion of females was the highest (85%) at Ikorodu market.
- Most of the PAPs were within the age bracket of 21-40 (67%), i.e the very productive years and periods where there are the most dependents. It is also significant that there were about 0.6% that were above 70 in age showing some of them vulnerable by age.
- 71% of the entire PAPs were married again showing that they had dependents while 5.2% were widows another set of vulnerable groups.
- Generally, the PAPs were fairly educated. 53.6% of the entire PAPs attained up to post primary education, 22.2% attained up to primary education, 13.4% had no form of formal education while

8.5% had tertiary education. Slight variations in educational attainment of PAPs occurred at the various sections of the corridor.

- Most (58%) of the PAPs business premises were owned by Local Government, while 24% were owned by individual private landlords. Other owners of PAPs premises along the study area include Market Association, Road Transport Unions, Market Leaders, etc. In a number of cases PAPs pay rent and other dues to multiple authorities. Roadside and street market operators pay daily levies ranging between N20 and N50 to the Local Government Agents. In some locations they were weekly levied between N100 to N250. PAPs using shops owned by private landlords pay between N500 to N2000 per month, while those within Ikorodu Market pay between N20,000 and N30,000 for ten years lease of their premises. According to the PAPs, construction of their business premises costs between N5,000 and over N200,000.
- The relocation concerns of the PAPs were diverse; economical-loss of sales/customers, livelihood and family upkeep; proximity to home and attendant added cost of transportation; fears of competing in new location; cost of acquiring new places; loss of investment etc. The statistics characterizing the fears of the PAPS show that a majority (83%) preferred to be relocated close to their current locations; 12% preferred to shift backwards from their current positions; and about remaining of about 6% expressed their desire to be moved to other locations totally out of the LGAs in which the corridor is situated.
- Three (3) broad categories of PAPs identified along the corridor were those: fully affected, partially affected and non-affected persons. Fully affected persons were those whose premises would be affected and will be completely relocated away from their current location. Some of the structures that were under this category and/or whose properties were to be demolished were:
    - Omolere and Olori market at Ikorodu.
    - Plantain market at Akanimodo, Mile-12.
    - 38 front row concrete lock-up shops in IIMDA Market Owode Onirin
    - Portions of Government Senior College Owutu
    - Cherubim and Seraphim Primary school, Majidun, both in Ikorodu

  Partially affected PAPs are the ones that will be physically displaced from the Project RoW comprising vendors with tables, umbrellas, itinerant (hawkers using wheel barrows), kiosk and open stall. Non-affected are those whose main structures are not within the Row of the proposed route and with this will not be affected by the project activities e.g. are shop owners who display their items outsides the confines of their premises and they will be required to take their items into their premises.

BOX 7: PROFILE OF PAPS

Total number of PAPs: 2231
- 473 at Ikorodu
- 572 at Ikorodu Market
- 134 at Agric
- 15 at Ogolonto
- 55 at Ajegunle
- 40 at Owode section
- 75 at Owode Market
- 836 at Mile 12
- 31 unaffected persons

- All PAPs were provided with identification cards. The provision of the identification cards on request makes them eligible for compensation and/or assistance. The identity card contains the following information; name of PAP, address, business type, issuance date, verification code and an embedded number.
- LAMATA had the Institutional and primary responsibility for implementing the RAP and would be supported as the need arose by any or all of the Ministry of Transportation, LASTMA, KAI, Local Government Council, NUTRW. Others are Ministry of Land, Ministry of Housing, Physical Planning and Urban Development, Ministry of Environment.

- The estimated restitution budget for the implementation of the proposed Mile-12 to Ikorodu Town BRT RAP was Eighty -one million, three hundred and eighty-two thousand, seventy naira (N81,382,070) only.

3.4.1.2 FINDINGS ON MILE 12-IKORODU RAP AT IMPLEMENTATION COMPLETION

There is no doubt that there was more than adequate consultation by LAMATA with the Stakeholders prior to project implementation. The RAP is evidence of the wide-ranged consultation. At project completion, the Consultants were able to confirm the fact of wide-ranged consultation. The RAP as well as the report from the Media and Communications unit contained evidence of FGDs and stakeholder meetings with CDAs, PAPs, Market Associations, Schools and Government institutions along the corridor. Apart from desk review, Consultants interviewed the head of units of both the Safeguards and External Relations units in LAMATA and perused records of the stakeholder meetings. With the positive desk review the central issue for the ICR was to evaluate the safeguards process and read the barometer of satisfaction to measure the readings of the PAPs in response to the RAP as well as the satisfaction of the CDAs that were consulted at the onset at project completion.

The Consultant conducted FGDs with four groups of stakeholders along the corridor and also interviews at the two terminals at Ikorodu and Mile 12 and also had FGDs with at least two CDAs. The purpose was to assess the effectiveness of the consultations and the RAP and generally to glean the extent of stakeholder satisfaction or otherwise so as to record lessons learned, best practices and recommendations for the future.

OMOLERE AND OLORI MARKET ASSOCIATIONS OF AYANGBUREN IKORODU

FIGURE 22: FGD IN SESSION

Pictures Anti-clockwise:

- *PAP Identity card of one of the PAPs*
- *The FGD in session with the members of the two market associations and the heads*
- *The head of the Meat Sellers of the Omolere Market Association-Alfa at the FGD*
- *Cross section of FGD*

The FGD was held on the 4th of April, 2017 in a compound of a building opposite nearly opposite to the BRT terminal, Ikorodu, a place close to the Ayangburen market site from which the two market associations used to occupy prior to being resettled Oluwo Odukan, by Agric Bus stop, by LAMATA. The FGD was attended by the representatives of the two Market Associations including the Iyaloja of Omolere Market and Iyalode of Olori Market and the Chairman of the Meat Sellers in the Market (Alfa). A total of 13 persons attended including 3 persons from the Consultants. From the market associations there were 3 main heads and 7 members. All of them were bonafide PAPs and they produced their Identity Cards as evidence.

FIGURE 23: THE AREA FROM WHICH THE OMOLERE MARKETERS WERE RELOCATED

The following issues emerged from the meeting which showed that despite the members having positive comments of LAMATA's resettlement intent, they were left dissatisfied at the end of it all and they did feel that their livelihood had been affected by the entire process and result of the resettlement:

- LAMATA Safeguards' Unit had good intention in the resettlement action and the team worked tirelessly. Before settling for the relocation venue at Oluwo Odukan by Agric Bus stop there had been spirited attempts to secure alternative areas closer to the original market by the Ikorodu roundabout, such as an area near the Post Office and Sigida, near Sabo but intrigues and politicking made them not to be successful.

- The process of enumeration was thorough but perhaps the time between enumeration and the final resettlement was too long and no further enumeration was done in-between such that when resettlement was implemented there was mismatch of PAPs with number of stalls. Some PAPs had relocated on their own away from the markets while new PAPs had since come. This meant that some new genuine PAPs who had not been enumerated were left affected while those whose names were registered but had since moved away got stalls in the new market
- The site which was finally decided on for relocation was a compromise place because at this time both PAPs and LAMATA Safeguards had become wearied by the process and they all settled for the place on some conditions which perhaps were not well articulated or understood by all parties. The relocation site already had a makeshift market controlled by a woman who was said to be from the original family that owned the land. The market was not successful in any way and had near zero patronage as at the time LAMATA came into the picture. First, the area was near virgin and there was another market –Agric market by the Agric Bus stop which enjoyed better patronage. LAMATA entered into discussion with the family of the Oluwo Odukan to allow the resettlement of the Omolere and Olori Market PAPs. LAMATA would develop stalls of about 500 and also offices for the Associations and the family would be compensated with many stalls in the market. It was believed that Toilet facilities would be enough for all the parties to coexist and yet have independence. The conditions upon which the woman representing the family/family agreed to lease the land to LAMATA was not known to the Market Associations as claimed by them and they had no representation in it according to them so they did not know whether there had been an outright sale of the property to LAMATA or to the LGA or whether it was a lease and for how long. The fact that the terms agreed with the owner were not transparent to all the parties meant that the woman could easily treat the new persons as usurpers and they had no legal stand to counter her.
- In a discussion with the LAMATA safeguards Unit it was discovered that contrary to the assertion of the PAPs, there had been a Memorandum of Understanding which they signed and which stated the terms a bit differently. However, from a legal point the Memorandum of Understanding had no *illiterate jurat* and the PAPs are clearly illiterate so it is plausible that they may not have understood the essence of the Memorandum.
- Both Omolere and Olori Associations had existing and strong organizational structures at Ayangburen Ikorodu Market and they had members who naturally owed allegiance to the respective “Iya Oloja” and the membership came with responsibilities such as payment of dues. Maintaining independent structure was thus key to the resettlement and they claimed they had informed LAMATA that this condition was sacrosanct. While LAMATA appeared to understand this and were able to convince them that this would be the case, the reality was the opposite as the owner of the land did not share this view and as such arrogated the land and the facilities (stalls, offices and toilets) to herself and demanded that the two more organized and populous Associations pay obeisance to her and derive their legitimacy through her. This was not what had been promised to the PAPs and naturally they kicked against it. The Meat Sellers also had their leader and they also kicked against having someone else leading them in the new site. Perhaps what LAMATA did not understand was that the Market Associations functioned effectively in their associations because there was hierarchy and there was financial independence and also clout. The Iya Olojas were respected and they were like “mini LGA Chairpersons”. No Iya Oloja was going to subsume such authority into another “non-starter” group like the owner of the relocation site had and the owner ought on her part not to want to profit from where she had not worked.

- The FGDs examined the reasons for the fall-out in the resettlement action as the following:
    - The enslavement from the land owner/market leader and how she cancelled their own association which has been in existence before they came to market and how she demanded that all of them would be in one association, which she would head and how the so called leader treated them badly- with insults and threats of black magic and how it practically became impossible to function in the market. The members of the Omolere and Olori Market Associations all united against the land owner/market leader. Since they did not select her, nor know here they were not going to be under her control.
    - LAMATA was not able to stand and insist on the rights of the PAPs to maintain their independent structures despite having promised them the same-a condition precedent for the relocation. One Iya-Oloja claimed that the market leader/owner threatened her life publicly and at that point she left the market, after which, the members of the association vacated the market premises as well.
    - LAMATA built two toilets in the market but they were not allocated any of these and neither were they given any of the 3 offices LAMATA built and that when they asked for their share of this office building, the woman said it all belonged to her.
- In all the problems with the Market Leader/Owner, LAMATA was said to have been informed but the matter was not promptly attended to, which allowed the dispute to fester the more. This is the view of the PAPs and the fact that they hold the view mean there was a breakdown in communication between LAMATA and the PAPs.
- The second main problem with the market site was that there was little or no sales and the PAPs who relocated lost money and were in debt. There capital eroded in the one year that most of them spent in the market. The place did not attract customers despite the good standard market infrastructure that LAMATA had provided. Also there was already an established market at Agric and as such the market did not stand a chance.
- Another issue was that the Olori and Omolere Markets at Ikorodu was essentially an evening market rather than a whole day market and their customers were workers returning home from work and this was not the same scenario in the new market allotted to them. So while they lost their established market at the roundabout, no new customer base was available at the new place so income was being lost daily.
- The PAPs also complained that the market area at Oluwo Odukan had security concerns and there were instances of rape around the bridges and some have challenges of climbing bridges because of their health issues which caused most of them to stop going to the market for a while and when they resumed once more in an attempt to start all over they found that their stalls had been vandalised.
- The FGD brought out some issues that LAMATA was asked to clarify in the resettlement action:
    - What was LAMATA's agreement with the landowner and what were the terms and why were they not shown the terms?
    - Did LAMATA just build the stalls for the family owner or were the stalls built for the PAPs?
    - What rights do PAPs have in resettlement and who should be responsible for protecting their rights?
    - Should the LGA or the Market Associations not have a say in the ownership of the market since LGAs normally collect dues from traders?
    - What happens to the financial losses traders suffer when there is a failed resettlement action?

- How can the resettlement action be resuscitated so that the PAPs can feel safe to go back and try again to build the market?
- Who is to broker a new enforcement of the rights of the PAPs.

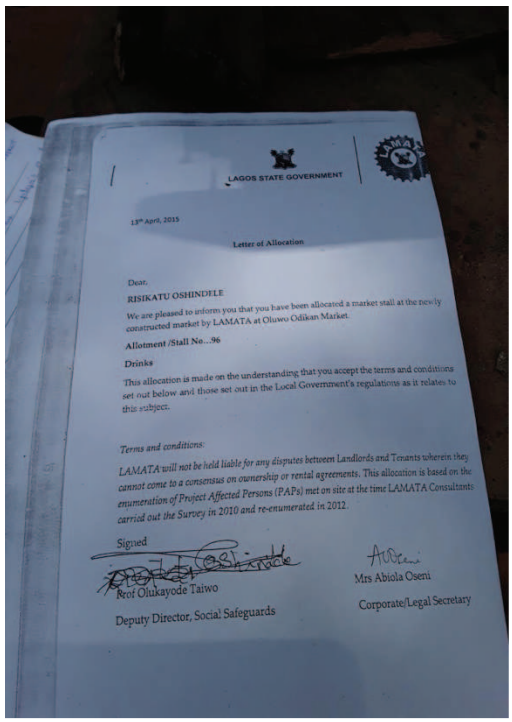
- Perhaps another challenge of the resettlement is in the seeming futility of the exercise. LAMATA is said not to have undertaken a total evacuation of all PAPs. While the Olori and Omolere market traders were moved from the area, another market adjoining their own market was allowed to stay and presently the persons moved out look at how the other market is still thriving without obstruction to the BRT corridor and they are left wondering why their lives and businesses were disrupted needlessly in their opinion. Evening trading has also resumed on the side walks of the place from which they were relocated and some of the PAPs confessed to having returned to their evening trading to survive.
- The PAPs are willing to return to the Oluwo Odukan market if the enabling circumstances are restored and LAMATA is the proper party to restore confidence in the RAP.

LESSONS LEARNED

(a) Resettlement should be holistic and sustainable. Security of tenure of land makes for sustainability otherwise the objective of the resettlement action will be defeated and another resettlement will have to occur in the future. In this instance the PAPs were displaced from an uncertain future to an equally uncertain future. In the long run money used to secure the resettlement does not bring judicious value.

(b) Resettlement should be totally transparent and non of the aspects or steps involved should be opaque to the PAPs. In this instance, there was a shroud covering the agreement between the original owner and LAMATA and their relationship as it would affect the PAPs such that there was insecurity of tenure and ownership of any real interests and even if there was ownership of stalls residing in the PAPs, the fact that the original owner could threaten their use of the stalls meant they still had insecurity of tenure. If the allottees were to be in a landlord and tenant relationship with the land owners then they should have been part and parcel of the negotiation of the tenancy. Also it is important that terms are explained properly to the PAPs so as to ensure acceptance. From the Agreement on allocation of stalls as shown in figure 6 below, there was no illiterate jurat to show that the terms the allottee PAP was signing was actually understood by her, being an illiterate. In the terms, LAMATA has asked to be exonerated from any liability in case of dispute between Landlord and Tenant in an agreement that the PAPs were not party too. Invariably the PAPs are left unprotected from the machinations of a Landlord they did not even know they had. To them LAMATA was their Landlord. Internal organizational structure of Market

FIGURE 24: LETTER OF ALLOCATION OF STALL TO PAP AND THE LIABILITY INDEMNITY CLAUSE


LAGOS STATE GOVERNMENT

13th April, 2015

Letter of Allocation

Dear,
RISIKATU OSHINDELE

We are pleased to inform you that you have been allocated a market stall at the newly constructed market by LAMATA at Oluwo Odikan Market.

Allotment /Stall No...96

Drinks

This allocation is made on the understanding that you accept the terms and conditions set out below and those set out in the Local Government's regulations as it relates to this subject.

Terms and conditions:

LAMATA will not be held liable for any disputes between Landlords and Tenants wherein they cannot come to a consensus on ownership or rental agreements. This allocation is based on the enumeration of Project Affected Persons (PAPs) met on site at the time LAMATA Consultants carried out the Survey in 2010 and re-enumerated in 2012.

Signed

Prof Olukayode Taiwo
Deputy Director, Social Safeguards

Mrs Abiola Oseni
Corporate/Legal Secretary

Associations are important and they function efficiently thus all resettlement plans should strive to maintain the integrity of the organizational structure and not seek in any way to erode it or weaken it.

(c) Resettlement ought not to end with just allocation of stalls and relocation but there should be an oversight role after relocation for purposes of sorting out all nutty or teething problems that may occur so as to facilitate seamless and sustainable resettlement.

(d) There is need for some Government supervisory role over resettled persons and the area so as to perform some function of supervision of the activities of the PAPs and give them assurance of security and tenure. In this wise, the LGA should have some role and such role should be defined so that it does not become burdensome supervision to the PAPs.

(e) LAMATA should seek to achieve long leaseholds of land that PAPs would be resettled on to. Short leasehold tenure is not ideal and if the land cannot be acquired by Government under the Land Use Act and compensation paid to the owner so that the land may be Government (LGA) owned (security of tenure guaranteed), then the leasehold should be at least 10 years with a proviso allowing the Market Associations to negotiate a further lease on any other conditions they may agree with the Lessors.

(f) The matter could still be resolved if the Safeguards Unit convenes a mediation meeting between the two Associations and the Landlord. The Ayangbunren traders are still willing to go back to the stall and continue with daytime trading but feel it is very unsafe to conduct evening trading in the area.

FIGURE 25: MARKET STALLS CONSTRUCTED BY LAMATA AT OLUWO ODUKAN FOR PAPS

OMOLERE PLANTAIN MARKET ASSOCIATION

The FGD with the Omolere Plantain Market Association was held on the 6th of April, 2017 at their Market site off the BRT corridor and to the right on the outbound Mile 12-Ikorodu between Mile 12 and Owode Bus stops. There were 8 persons in attendance including 2 from the Consultant. The executive members of the Association were the ones in attendance. The Consultants had been led to meet with the Plantain Market Association on the referral of the Mile 12 Market Community Association who had informed the Consultant of the resettlement action in respect of the Plantain sellers and the negative issues arising from same.

The Omolere Plantain Market Association had had a chequered history. First they were originally from Tejuosho market in Yaba and were moved to Mile 12 when the LASG set out to re-develop the Tejuosho market. They were allocated the space at Mile 12 by the LASG through the Ministry of Planning. When the BRT extension was to be developed they were again informed that they would be relocated somewhere else. They acknowledge that LAMATA consulted with them many times. First, they attended a Stakeholders' meeting at the Airport Hotel in Ikeja, Lagos where they met with LAMATA's Prof Taiwo head of the Safeguards Unit. According to their account, though they were consulted, they were not allowed to make a lot of contribution and they felt that they were not really being listened to.

They embraced the inevitability of their relocation once more away from Mile 12 since LAMATA told them they could not find space in the environs. Sometime in the course of the period, LAMATA informed them of a place inside the Mile 12 community in a swampy area and although when they saw the place they did not feel it was ideal but they had little or no choice. Also the community members were a bit hostile at the beginning. When the Community however got to know that LAMATA would develop the road to the area that was to be allocated to the Omolere Plantain Market they had a change of attitude and began to work together in support of the relocation because of the added advantage to the community of infrastructure development. The Association said they were invited to LAMATA office at one time where they were introduced to the owners of the land only but that they were not privy to the contract negotiations with the Landowners.

However, there was a lull in continuous engagement with the Association by LAMATA and being uncertain of the future the Omolere Association obtained lease of another land also in a swampy area but on the opposite side of the Mile 12-Ikorodu Road where the LAMATA allocation was. They began to spend money to fill the land so that delivery trucks would find it motorable. As they were expending money on this venture, they learnt that LAMATA had begun to construct the road leading to the area and had started sand filling the area. They enquired at LAMATA and were told that the place was for them at which point they decided to take the place up and expand their market that had been allotted to them and invited them again to the place at which time they decided to take up the allocation and they relocated to the LAMATA resettlement land. They claimed that they suffered loss of earnings through theft of all their goods (plantains) from the porous nature of the allotted land are as LAMATA did not fence the place but they acknowledged that LAMATA expended a lot of money on filling the swamp and constructing drainage system and providing tarred road access to the place. The area still is subject to flooding but all these could be addressed by the Association if they had land tenure which is the main issue why the resettlement action of LAMATA has fallen on shaky grounds.

Figure 26:STALL-TYPE FENCING OF THE OMOLERE PLANTAIN MARKET ASSOCIATION ON THE ALLOTTED LAND

FIGURE 27: FGD IN SESSION

The Association claimed that they had just received a call from LAMATA that land in issue was to be handed over to the owners the lease entered into by LAMATA having elapsed. The Association claimed that they had requested for the terms of the agreement for a long time and had not been given and that it was thus a shock to them to be informed that the lease was only for three years and had elapsed. They said that they finally got a copy of the lease on the 10th of March, 2017 and that they are disadvantaged not having been a party to the lease. They also said that LAMATA called them first week in April to invite them to the handing over of the property back to the owners. They are worried that the land owners would legally be able to evict them form the land and that all the money spent by LAMATA ostensibly to resettle them has only accrued advantage to the owners of the land. They complained that had they been privy to the leasing of the Land at the onset they would have negotiated for a longer term of opted for a purchase of the property. They now say that they have suffered immense financial losses because of the development they made on the allotted land which has now reverted to the owners. They are not sure they can ever negotiate with the owners at any advantage.

BOX 8: FGD ATTENDANCE

Omolere Plantain Market Association Executive Committee in attendance
Mr Adeshina Oyegunle (Chairman)
Akeredolu Oluyemi (Secretary)
Madam Silifat Tijani (Iya Ewe)
Matthew Oyedeji (Committee Member- Market)
Mrs Ogunyemi (Committee Member-Market)
Sola Olaleye (project coordinator)

The Plaintain Market Association however thanked the LASG and LAMATA for constructing the BRT extension as it had contributed to improved sales in the area they are which they leased on their own. They regret that they have had to spend money in two places and would have been satisfied with the LAMATA site if only they had secure land tenure. They however would like LAMATA to consider the following safety and security issues on the corridor:

- There is inadequate number of footbridges especially between Ogolonto and Idi Iand as there are many schools around the lack of footbridges pose great danger to children and adults alike.
- There are now more accidents especially around the Adekunle area.
- The elderly from about 50 years of age are afraid of crossing the road even at the pedestrian crossings because of poor signage and the reckless driving of some drivers who do not stop for pedestrians at the crossings.

LESSONS LEARNED

Lessons learned are similar to the ones in respect of the Ayangburen Market Associations. LAMATA had good intentions, put in a lot of effort in sensitizing the PAPs, gained the trust of the PAPs reflective of very proficient engagement but implementation of the RAP did not yield results that the beneficiaries could celebrate. It is important that there is transparency in all the processes of the RAP. In this case, it does appear that the main beneficiaries of the RAP are the owners of the property and not the intended beneficiary. The important rule in resettlement is that the PAPs should not be left worse off than they were prior to the resettlement. This is exactly how the PAPs feel at this point.

WETLAND COMMUNITY DEVELOPMENT ASSOCIATION (CDA)

The FGD with the Wetland CDA was held on the 5th of April at bout 2.29pm on Thursday with 10 community leaders and 3 persons from Sages Consult. The discussion with the CDA had no resettlement issues but just to verify the level of consultation and engagement that the LAMATA media unit had at project commencement and the project social impacts at completion. The main points raised are as follows:

- Flooding which had been a perennial problem prior to the BRT project and which the CDA had feared would become worse with the intervention had actually reduced substantially although flooding still occurs when the rains continue for days on end. The CDA was thus satisfied that the intervention had actually stemmed the tide as regards flooding.
- Jobs that had been promised the youths from the community during construction did not actually materialize but this was attributed to the Construction Company's daily wage which was very low and which many of the youths who had first enrolled to work with them felt were penury wages and the youths opted out.
- The Community says that there is an increase in the number of accidents on the road since the road was commissioned. They feel that signages are not placed at distances that first warn of impending danger. They believe that there should be a bus stop between Itowolo and Asola and that there should be a terminal at Ajegunle. The reason is that their community is one populated by office employees who work in Lagos and use the BT and usually at between 5-6am the BRT buses do not BRT buses do not stop because they would have been filled up. So the CDA recommends that a bus should start from Ajegunle in the mornings.

FIGURE 28: WETLAND CDA MEMBERS

- The lack of buses in Ajegunle has caused the people to fall back to using Okada which has caused an increase in Okada accidents. Okada riders are allowed to take the BRT exclusive routes with the complicity of law enforcement agents along the corridor.
- The CDA also said that there was a need for LAMATA to collaborate with LASAMBUS and the Police to bring an emergency point to Ajegunle because during rainy season when the rivers overflow their banks, road accidents occur especially between Mile 12 and Majidun and cars pluge into the rivers and the youths in the Wetland communities are the only professional divers who can rescue them. The youths could be employed by the emergency services to be divers. The emergency point should be a speed boat point so that help can get to the people who need it quickly.
- The CDA said that when the road was first commissioned street lights came on promptly in the night and stayed on till the morning but that in the past year this has changed and street lights came on and stayed on for a maximum of 1-2hours. When street light was on for 12 hours, incidents of burglary and robbery around the road and in the communities was reduced but with the cover of darkness robbery incidents have increased. It is also true that trading activities in the communities picked up significantly when the street lights were on regularly because the women felt safe to stay out later and the commuters also bought food on their way home form work late into the night but with the lack of light, trading activities are at their lowest ebb and the women have lost income they had come to rely on.
- The CDA said that it would be a good move to allow the CDA to monitor the activities of the Street Light managers.
- Because of the flooding in the area, schools were moved to Kosofe Ketu and so the community has no junior and senior secondary schools. Because there are no Bus stops around Ajejunle, many young girls have dropped out of school, mainly because some parents couldn't afford the transport fares and the distance from their community to the schools are too far to walk. Idleness has thus impacted on a good number of young girls who have become pregnant.
- The CDA wants enforcement of Zebra Crossing as many drivers don't obey the signs and this has resulted into accidents of different kinds.

- The CDA also raised concerns about security at the footbridges and bus stops. There had been cases of kidnapping, rape, robbery, and these occur very early in the morning.

LESSONS LEARNED

When a project comes on stream both positive and negative social impacts can occur. It is important to engage the community as partners in sustainability. CDAs could be serve as Monitoring Agents for LAMATA to ensure public infrastructure serves the communities efficiently and are not wilfully damaged by users. In this wise the street lights which brought positive impact to the community such as improved livelihoods, social interaction should not have also taken away the positive aspects just because the persons in charge may have become lackadaisical.

The issue of lack of concessionary transport fare for children needs to be evaluated and a system of subsidy should be considered by LAMATA.

MILE 12 CENTRAL COMMUNITY ASSOCIATION

The FGD was held at the Community Office on the 4th April, 2017 The meeting started at 12.45pm with 5 of the community members and 2 officials. The Group had words of commendation for LAMATA media and Safeguards units but also had some issues. One was that since the road BRT extension project there was no direct bus route to the corridor anymore and this meant the residents had to trek long distances to get to the corridor junction. They also raised the issue of the resettlement action for the Plantain Market Association and said that their community stood to suffer losses it the resettlement was allowed to fail, because they were collaborators in the project because the plantain sellers had helped to reduce the community's vulnerability to robbery from the Ogun river boundary. Having built some stalls to serve as some perimeter fencing the porous area was less porous. Also business activities had picked up in the area especially with the road that LAMATA tarred leading to the allotted land.

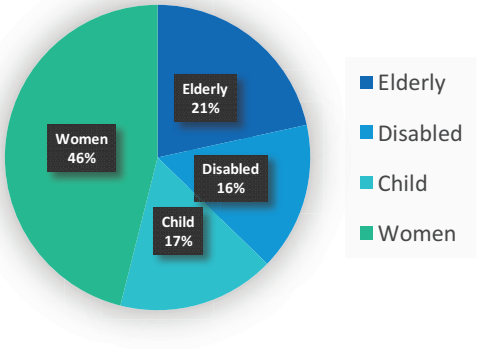
FIGURE 29: FGD WITH MILE 12 COMMUNITY DEVELOPMENT ASSOCIATION

3.4.1.3 FINDINGS ON IMPACTS ON GENDER AND VULNERABLE GROUPS

SURVEY POPULATION

120 people in the gender and vulnerable groups were surveyed out of which 47 persons representing 46% of the population were women, 21% were elderly, 17% were children of primary and secondary school age who were at the Terminals in Ikorodu and Mile 12 and 16%. 65% of the elderly use the BRT to commute to places such as hospitals, visit friends and family. Only 20% of the children, a subset of 17 people use the BRT. Reasons adduced included the buses not welcoming children and the fares being too high. This finding will be subjected to more scrutiny when Primero is interviewed.

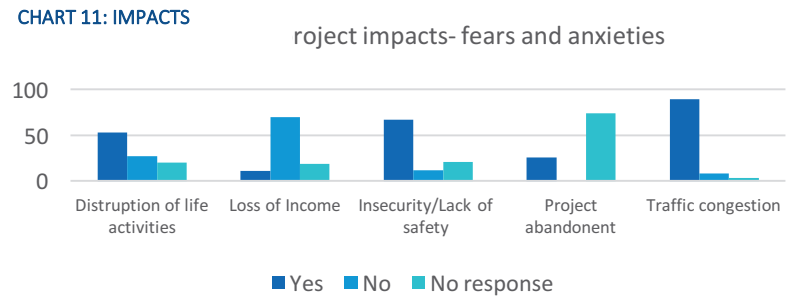
CHART 10:POPULATION DISTRIBUTION



ANTICIPATED PROJECT IMPACTS-FEARS AND ANXIETIES

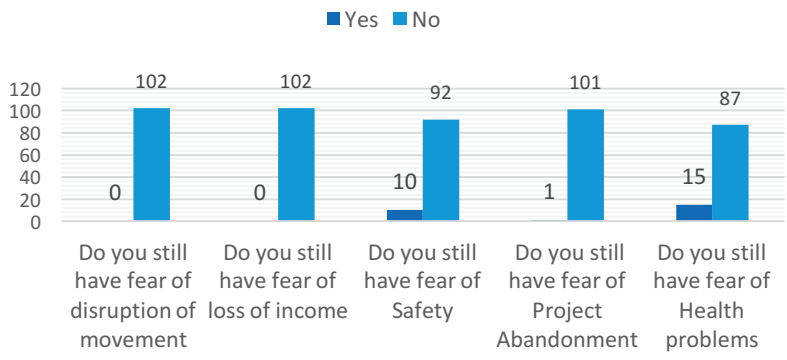
Prior to the commencement of the construction of the BRT road, the respondents had varied anxieties about the project with the highest percentage of 89% expecting traffic congestion and 67% expecting insecurity to be a major challenge. 53% anticipated disruption to their lives while 70% did not expect the road construction to affect their income. It must be noted that the people who expected their income to be unaffected were mainly from the elderly group who were pensioners or not working while the women were the ones who expected loss of income.

CHART 11: IMPACTS



IMPACT AFTER COMPLETION PROJECT

CHART 12: IMACTS AFTER OPINION AFTER ROAD COMPLETION



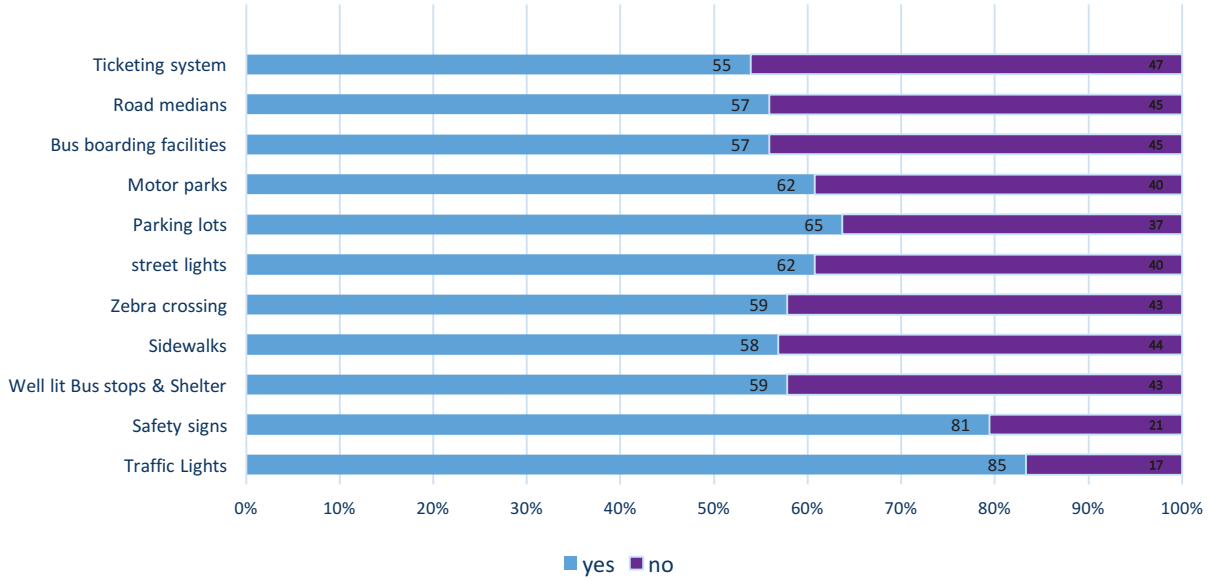
There is a consensus among the group that the BRT has impacted positively on their lives and on the socio-economic activities as well. 100% of respondents say that they have no more fear concerning disruption of movement along the corridor and that traffic has eased almost totally. Respondents also do not have fear of loss of income on account of the project, rather they say the project has opened

avenues for trade as evening trading and night life and economy have picked up generally because of the street lights on the corridor. The women say that they are no longer afraid as they used to be prior to the BRT and they could extend their trading period till about 8.00 pm. About 10% of respondents still have concern in relation to safety and security on the road. The explanation is that there are accidents on the road because motorcycles speed indiscriminately and the signage is not easily understood by non-drivers. Of great concern were the fears expressed by the elderly who were afraid of crossing the road at the zebra crossing because motorists do not observe the request by pedestrians to use the road. The need to conduct a general road education programme and signage reading was expressed by all.

3.4.1.4 ROAD FURNITURE AND FACILITIES THAT PROMOTE SECURITY AND SAFETY

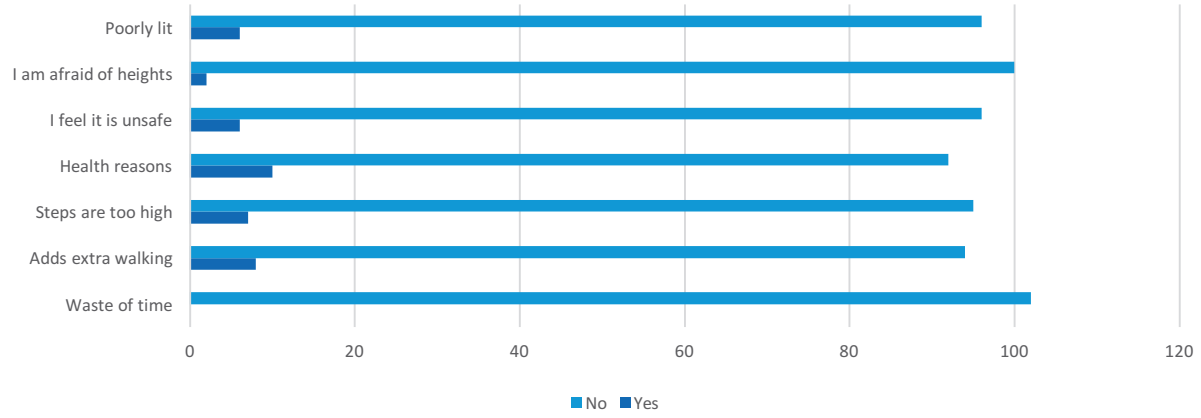
85% and 81% of the respondents find that the traffic lights and signage along the corridor contributes to safety and security the road. Respondents are split substantially on the questions of well lit bus stops and shelters, street lights, sidewalks and zebra crossings. On further questioning the issues raised were that at the launching of the BRT, the street lights were always on in the night for at least 12 hours such that the corridor was safe but that for over 8 months the corridor has not been lit longer for up to 4 hours in the night and that this has contributed to a feeling of insecurity among the project community. They believed that the wave of robberies and cult activities around the communities from Mile 12 to Majidun and then to Ikorodu has been aided by the darkness around the corridor. They reported instances of rape and robbery and even kidnapping around the bus stops and the improved roads making getaway along the roads easier.

CHART 13: ROAD FACILITIES AND FURNITURE THAT PROMOTES A FEELING OF SAFETY



3.4.1.5 USE OF FOOT BRIDGES

CHART 14: REASONS FOR NOT USING PEDESTRIAN CROSSINGS/BRIDEGS

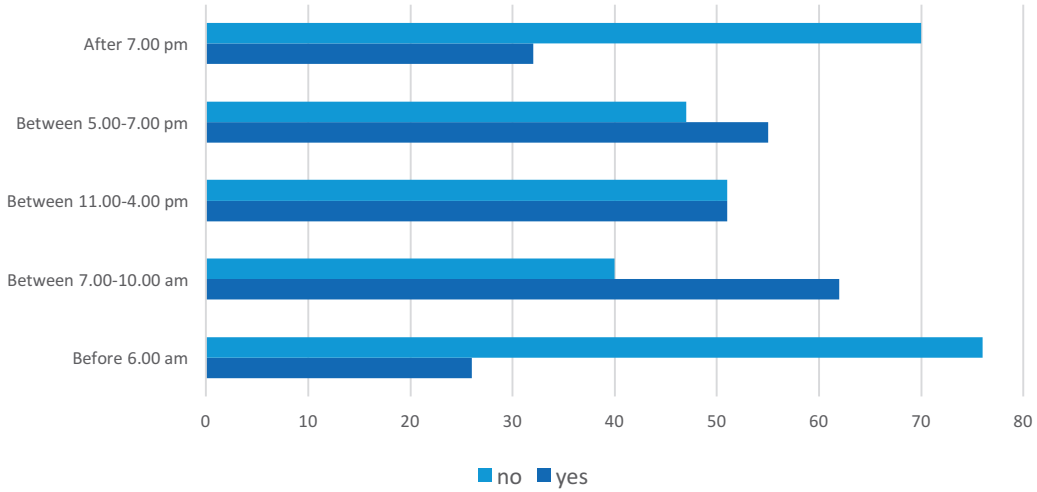


The women and vulnerable groups clearly use the foot bridges which is a very positive outcome indeed. The questions in the survey instrument were framed in a negative format inviting confirmation to be in the negative but on analysis the answers came back positive. For example, 100% of the respondents do not consider using the pedestrian bridges as a waste of time and 100% also say they are not afraid of heights just as at least 95 % do not feel it is unsafe to use the bridges.

3.4.1.6 PREFERRED TIMES FOR USING FOOT BRIDGE CROSSINGS

The respondents do not feel safe using the crossings before 6.00am and neither do they use it often after 7.00pm, however, at all other times they have no apprehension of danger on the bridges. The children in particular find the bridges to be an exciting climb and would wish that all the bus stops along the corridor have bridges. The women are a bit apprehensive of the bridges but they have grown accustomed to it.

CHART 15: TIMES WHEN PEDESTRIAN CROSSINGS ARE USED



3.4.2 DATA GATHERING TO IMPLEMENT GHG EMISSIONS REDUCTION ASSESSMENT METHODOLOGY FOR LUTP2 BRT CORRIDORS

In June 2013, LAMATA undertook surveys on two corridors to determine the base case for the implementation of a GHG emissions monitoring methodology for the Lagos metropolitan area, focusing primarily on the new BRT corridor funded under the second phase of the LUTP (Mile 12 to Ikorodu). Apapa-Oworonshoki Expressway which is labelled corridor 1 was chosen as the control corridor to determine the background traffic growth not attributed to BRT. The Ikorodu road corridor is labelled corridor 2. The base case was intended to provide LAMATA with sufficient information to be able to estimate, the amount of GHG (CO2) emissions on the Mile 12 to Ikorodu corridor before the implementation of BRT.

The exercise conducted by LAMATA in June 2013, was carried out again in 2016 and the results, are presented in this summary of the report that was submitted by the consultants retained for the GHG Emissions study. Furthermore, a careful comparison of the 2013 and 2016 total CO2 emissions has been carried out to determine the effect of BRT implementation and to ascertain whether there has been an increase or decrease in the total CO2 emission.

For the purpose of the project, two (2) study corridors were identified as in the previous studies. The surveys, traffic counts and testing focused on the following roadway corridors:

- Apapa-Oworonshoki Expressway (between Gbagada-Mobil and Cele Bus stop)
- Ikorodu Road (between Mile 12 and Ikorodu Roundabout)

Ikorodu Road is the 'study' corridor while the Apapa-Oworonshoki Expressway serves as the 'control' corridor. Specific points along the above corridors were selected and presented below in **Tables 34** and **35**

TABLE 34: CORRIDOR 1 SURVEY LOCATIONS- SOURCE GHG EMISSIONS REPORT

Roadway	Coordinates	Segment	Location	Direction 1	Location	Direction 2
Apapa – Oworonshoki Expressway	3°23'19.46"E , 6°32'55.64"N	Gbagada to Oshodi	Mobil Petrol Station (Gbagada)	To Gbagada	Ram Market	To Cele
	3°20'58.58"E , 6°33'17.85"N	Oshodi to Matori	Me Cure Health Building (Oshodi)	To Gbagada	Zenith Bank (After Bridge)	To Cele
	3°19'28.27"E , 6°30'24.89"N	Matori to Cele	Opposite Cele / Under bridge (Cele)	To Gbagada	Cele Bus stop	To Cele

TABLE 35: CORRIDOR 2 SURVEY LOCATIONS- SOURCE GHG EMISSIONS REPORT

Roadway	Coordinates	Segment	Location	Direction 1	Location	Direction 2
Ikorodu Road	3°24'3.91"E , 6°36'17.54"N	Mile-12 to Majidun	Mobil Petrol Station (Mile-12)	To Ikorodu	Opposite Mobil Petrol Station (Mile-12)	To Mile-12
	3°28'27.71"E , 6°37'10.03"N	Majidun to Oba Sekumade	Near Oba Sekumade Junction (Ikorodu)	To Ikorodu	Ogolonto Bus stop	To Mile-12
	3°30'11.51"E , 6°37'14.22"N	Oba Sekumade to Ikorodu R/A	Near Allison street junction (Ikorodu)	To Ikorodu	Near AP petrol station before Leku street	To Mile-12

Data collection for the project primarily involved two (2) types of surveys including

(a) Drive Cycle Test

(b) Manual Classified and Vehicle Occupancy Counts

Drive Cycle Test survey was designed to capture average driving conditions across the different vehicle bin types within the study area, and to monitor how travel conditions evolve over time following the introduction of the BRT scheme. Drive cycle tests were conducted within a 2-week period from Saturday, 14 May to Saturday 28, 2016. The **Manual Classified and Vehicle Occupancy Counts:** The Manual Classified and Vehicle Occupancy Counts started on Saturday, 14 May, 2016 and were conducted for a total of seven (7) days, ending on Friday, 20 May, 2016 between the times of 6am to 8pm.

The **drive cycle test**, **manual classified and vehicle occupancy counts**, were conducted on both **private cars** and **public passenger vehicles** which including: Okada; Tricycle (Keke NAPEP); Dnafo – 14; Danfo – 18, Danfo – 22; Cars; Taxis, Coaster buses; Large Bus (BRT/LAGBUS etc.) and Trucks (Lorry / Trailer

Analysis and Results: In 2013, the results focused on three (3) key aspects of the analysis that guide the objectives of the project including: Equivalent CO2 and Fuel Performance and Inter-City and Inter-Model Comparison

COMPARISON OF THE TOTAL EMISSION OBTAINED FROM 2013 AND 2016 ON CORRIDOR 1:

The table below, present a comparison of year 2013 Total CO2 Emissions with the 2016 Total CO2 Emissions at corridor 1 (Apapa-Oworonshoki Expressway).

TABLE 36: TOTAL CO2 COMPARISON 2013 VS. 2016 FOR CORRIDOR 1 -SOURCE GHG EMISSIONS REPORT

Corridor 1: Apapa Oworonshoki Exp. Way	2013 Total CO2 Emissions *G (kg)*	2016 Total CO2 Emissions *G (kg)*	Difference *G (% diff.)*
Vehicle Bins			
Okada	2032	3865	90%
Tricycle (Keke NAPEP)	115	131	14%
Cars	287247	441787	54%
Taxi	16929	18287	8%
Danfo - 14	19574	13705	-30%
Danfo – 18	4880	3403	-30%
Danfo – 22	3213	2010	-37%
Coaster	1085	836	-23%
Large Bus (BRT/LAGBUS etc.)	1324	935	-29%
Trucks (Lorry / Trailer)	85838	43129	-50%
Total	**422238**	**528088**	**25%**

From the table above;

- *The total CO2 emission at corridor 1 for the year 2013 is 422 tonnes*
  The total CO2 emission at corridor 1 for the year 2016 is 528 tonnes
- *The percentage difference is 25% (increase in CO2 emission) on corridor 1*

COMPARISON OF THE TOTAL EMISSION OBTAINED FROM 2013 AND 2016 ON CORRIDOR 2

The table below, present a comparison of year 2013 Total CO2 Emissions with the 2016 Total CO2 Emissions at corridor 2 (Ikorodu Route).

TABLE 37: TOTAL CO2 COMPARISON 2013 VS. 2016 FOR CORRIDOR 2- **SOURCE GHG EMISSIONS REPORT**

Am	2013	2016	diff.
Corridor 2: Ikorodu Road		Total CO2 Emissions	
	G (kg)	*G (kg)*	*G (% diff.)*
Vehicle Bins			
Okada	380	1704	349%
Tricycle (Keke NAPEP)	25	63	151%
Cars	202098	272315	35%
Taxi	12189	12102	-1%
Danfo - 14	10846	6258	-42%
Danfo – 18	4693	2352	-50%
Danfo – 22	719	498	-31%
Coaster	618	400	-35%
Large Bus (BRT/LAGBUS etc.)	975	3297	238%
Trucks (Lorry / Trailer)	138394	49564	-64%
Total	370937	348553	-6%

From the table above;

- *The total CO2 emission at corridor 2 for the year 2013 is 371 tonnes*
  The total CO2 emission at corridor 2 for the year 2016 is 349 tonnes
- *The percentage difference is -6% (decrease in CO2 emission) on corridor 2*

Table 36 above indicates that there has been a 25% increase of Total CO2 Emissions from 2013 to 2016 on the Apapa Oworonshoki Corridor. Table 37 however shows that Total CO2 Emissions has decreased by a margin of -6% between 2013 and 2016 along Ikorodu Road Corridor. This reduction of Total CO2 Emissions on Ikorodu Road Corridor could be attributed to the introduction of a new BRT system since November 2015 and also suggesting there is a switch from other modes to the BRT resulting in lower emissions overall.

IMPACT OF BRT ON THE STUDY CORRIDOR

To determine the true impact of the BRT system on the Ikorodu Road study corridor, the growth exhibited on the control corridor between 2013 and 2016 was applied to the 2013 traffic of the BRT corridor to derive the passenger trips for the counterfactual scenario without BRT. The percentage growth from the control corridor was derived by calculating the increase in number of vehicles in each bin from the base year 2013 to current year 2016 and then dividing that number by the 2013 volume.

TABLE 38 CONTROL CORRIDOR GROWTH BASED ON NUMBER OF VEHICLES- SOURCE GHG EMISSIONS REPORT

Corridor 1: Apapa Oworonshoki Exp. Way (Control)				
Number of vehicles				
Vehicle Bins	2013	2016	Diff.	%
Okada	5967	8440	2473	41%
Tricycle (Keke NAPEP)	1482	1455	-28	-2%
Cars	145989	186266	40277	28%
Taxi	10675	8101	-2574	-24%
Danfo - 14	46303	41977	-4326	-9%
Danfo – 18	12714	12585	-129	-1%
Danfo – 22	12197	8788	-3409	-28%
Coaster	5264	4301	-963	-18%
Large Bus (BRT/LAGBUS etc.)	6649	5862	-787	-12%
Trucks (Lorry / Trailer)	23447	18169	-5278	-23%
	270689	**295944**	**25255**	**9%**

Percentage difference of 9% (increase in traffic) traffic on the road between 2013 and 2016

Table 38 above shows the average growth on the control corridor between 2013 and 2016 which has on average has been estimated at 9%. The growth factors were then applied to the 2013 Study Corridor traffic to derive the corresponding 2016 Study Corridor traffic called the counterfactual scenario.

Table 39 below presents the summary of activity and CO2 emissions per vehicle type for a growth induced study corridor (counter factual) scenario without BRT. The calculation indicates a total of **403** Tons of equivalent CO2 was obtained for the study corridor under the counter factual scenario. When the **349** Tons of equivalent CO2 for the study corridor is deducted from the counter factual, the resulting **54** Tons of equivalent CO2 represents the impact of the BRT on the study corridor. This also suggests that the BRT is responsible for a 13.5% reduction of total CO2 emissions on the Ikorodu Road study corridor as shown in **Table 40**.

TABLE 39 TOTAL CO2 CORRIDOR 2 (WITHOUT BRT) SOURCE GHG EMISSIONS REPORT

	T	D	O	A	B*C	G
Corridor 2: Ikorodu Road	Passenger Trips	Passenger Trip Distance	Per Km Vehicle Occupancy	Vehicle Activity	Emission Factor	Total CO2 Emissions
	pax	*km*		*veh-km*	*g/veh-km*	*kg*
Vehicle Bins						
Okada	4,077	1.6	1.60	4,053	93	377
Tricycle (Keke NAPEP)	119	8.5	2.22	457	93	43
Cars	91,197	22.6	1.82	1,129,443	295	333,186
Taxi	1,422	28.3	1.43	28,018	392	10,983
Danfo - 14	15,287	14.6	10.53	21,277	427	9,085
Danfo – 18	9,131	14.6	13.43	9,964	427	4,255
Danfo – 22	892	14.6	12.98	1,007	427	430
Coaster	1,456	15.4	37.47	597	649	388
Large Bus (BRT/LAGBUS etc.)	3,760	15.4	52.86	1,099	800	879
Trucks (Lorry / Trailer)	5,118	22.3	2.23	51,189	843	43,153
Total	**132,459**			**1,247,105**		**402,778**

A comparison of the total CO2 emissions for 2016 with BRT and equivalent 2016 without BRT is presented in Table 40 below.

TABLE 40: TOTAL CO2 COMPARISON 2016 VS. 2016 FOR CORRIDOR 2 (WITHOUT BRT) SOURCE CHG EMISSIONS STUDY

	2016 *(without BRT)*	**2016** *(with BRT)*	**diff.**
Corridor 2: Ikorodu Road	**Total CO2 Emissions**		
	G *(kg)*	***G*** *(kg)*	***G*** *(% diff.)*
Vehicle Bins			
Okada	377	1,704	352.0%
Tricycle (Keke NAPEP)	43	63	47.1%
Cars	333,186	272,315	-18.3%
Taxi	10,983	12,102	10.2%
Danfo - 14	9,085	6,258	-31.1%
Danfo – 18	4,255	2,352	-44.7%
Danfo – 22	430	498	15.9%
Coaster	388	400	3.2%
Large Bus (BRT/LAGBUS etc.)	879	3,297	275.2%
Trucks	43,153	49,564	14.9%
Total	**402,778**	**348,553**	**-13.5%**

Percentage difference of -13.5% (decrease in traffic) traffic on the road 2016

CONCLUSION

The conclusion based on the above analysis of the impact of BRT and the comparison of the with BRT and without BRT scenarios for year 2016 is that, the BRT has had an overall positive effect on total CO2 emissions on the Ikorodu Road Corridor. This conclusion is further strengthened by the comparison analysis of the 2013 without BRT and equivalent 2016 without BRT, which showed that, had the BRT system not been implemented, total CO2 emissions would have increased on the Ikorodu Road study corridor by approximately 9%. The positive effect of the BRT is thus demonstrated.

5. PROJECT EVALUATION: ECONOMIC ANALYSES

5.1 SUMMARY OF TRAFFIC DATA

TABLE 41: DAILY TRAFFIC VOLUME

Road	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Ikorodu -Mile 2 (WB)	19,217	23,904	21,751	25,324	17,649	12,419	6,803	127,067
Mile 2 - Ikorodu (EB)	15,294	12,606	17,778	13,629	15,321	12,419	6,297	93,344
WEMPCO Road (WB)	4,495	4,360	4,175	4,262	3,336	2,581	1,756	24,965
WEMPCO Road (EB)	4,669	4,429	3,893	4,602	3,106	2,056	1,680	24,435
Akin Adesola Road (NB)	4,993	4,402	4,504	3,508	4,507	1,900	1,412	25,226
Akin Adesola Road (SB)	2,495	2,336	2,223	2,109	1,990	1.270	1,164	12,318

TABLE 42: TRAFFIC VOLUMETRIC COUNT-MILE 12-IKORODU, WEMPCO ROAD, AKIN ADESOLA ROAD.

	Cars and Utilities	Light Buses	Heavy Buses	Light Trucks	Heavy Trucks	Motor Cycles	Total in PCU
Ikorodu- Mile 2 (WB)	8,546	3,255	1,776	780	1,383	1,845	17,585
Mile 2 - Ikorodu (EB)	4,884	2,500	1,404	789	367	1,202	11,146
WEMPCO Road (WB)	18,090	2,106	566	424	362	2,526	24,074
WEMPCO Road (EB)	11,853	2,534	1,928	1,171	813	2,420	20,719
Akin Adesola Road (NB)	19,862	1,705	180	216	128	3,407	25,498
Akin Adesola Road (SB)	10,100	1,619	15	84	21	2,155	13,994

5.2 UNDERLYING ASSUMPTIONS

1.	Cost of Petrol	N145.00 per Litre
2.	Cost of Diesel	N203.00 per Litre
3.	Value of Time (VOT) PT	N231.10 (LAMATA Studies)
4.	Value of Time (VOT) Private	N299.62 (LAMATA Studies)
5.	Traffic Growth Rate	7% (PAD)
6.	Demand Expansion Factor	312 Days
7.	Share of Diesel - Fuel cars	5.95%
8.	Average Trip Length (Km)	0.41 Calculated from Field Survey (Akin Adesola) 0.90 Calculated from Field Survey (Wempco Rd.) 8.58 Calculated from Field Survey (Mile 12 to Ikorod
9.	Inter annual Growth Rate	3 %
10.	Peak to Daily Ratio	7
11.	Occupancy Rate (Bus)	13
12.	Occupancy Rate (Cars)	2
13.	Discount Rate	12 %
14.	Maintenance Rate	1 %
15.	Fuel Consumption Calculation: $L (Liters) = a/v + b + c*v + d*v^2$ (Source of parameters a, b, c, d (from WebTAG, U.K. 2013)	

5.3 ECONOMIC ANALYSIS OF BRT MILE 12-IKORODU AND REHABILITATED ROADS

The economic analysis is contained in Tables 43, 44 and 45 respectively for Akin Adesola Road, Wempco Road and Mile 12-Ikorodu Road.

TABLE 43: ECONOMIC ANALYSIS OF AKIN ADESOLA ROAD

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	COST (m NGN)	**1,648.20**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**	**16.48**
	Construction Cost (m NGN)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Maintenance Cost (m NGN)		16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48
	BENEFITS (m NGN)		**727.15**	**797.62**	**875.01**	**960.03**	**1,053.42**	**1,156.02**	**1,268.76**	**1,392.63**	**1,528.75**	**1,678.35**	**1,842.76**	**2,023.48**	**2,222.13**	**2,440.50**	**2,680.57**	**2,944.52**	**3,234.74**	**3,553.85**	**3,904.77**	**4,290.68**
	Vehicle Operating Cost Savings (m NGN)		117.66	125.89	134.71	144.14	154.23	165.02	176.57	188.93	202.16	216.31	231.45	247.65	264.99	283.54	303.39	324.62	347.35	371.66	397.68	425.52
	Time savings (m NGN)		609.49	671.72	740.31	815.89	899.19	991.00	1,092.18	1,203.70	1,326.59	1,462.04	1,611.31	1,775.83	1,957.14	2,156.96	2,377.19	2,619.90	2,887.39	3,182.19	3,507.09	3,865.17
	Discounted Values																					
	Cost (m NGN)		14.72	13.14	11.73	10.47	9.35	8.35	7.46	6.66	5.94	5.31	4.74	4.23	3.78	3.37	3.01	2.69	2.40	2.14	1.91	1.71
	Benefits (m NGN)		649.24	635.86	622.82	610.12	597.74	585.68	573.92	562.46	551.28	540.38	529.75	519.38	509.25	499.37	489.73	480.32	471.12	462.14	453.37	444.80
	B-C (m NGN)	- 1,648.20	710.67	781.14	858.53	943.55	1,036.94	1,139.54	1,252.27	1,376.15	1,512.27	1,661.87	1,826.28	2,007.00	2,205.65	2,424.02	2,664.09	2,928.04	3,218.26	3,537.37	3,888.29	4,274.20

Discount rate	**12%**
Cost (m NGN)	**1,771.31**
Benefits (m NGN)	**10,788.73**
eNPV (m NGN)	**9,017.43**
B/C Ratio	**6.09**
eIRR	**53%**
Voc Savings (m NGN)	**1,409.18**
Timesavings (m NGN)	**9,379.56**

TABLE 44: ECONOMIC ANALYSIS OF WEMPCO ROAD

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COST (m NGN)	**2,169.21**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**	**21.69**
Construction Cost (m NGN)	2,169.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance Cost (m NGN)		21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69	21.69
BENEFITS (m NGN)		**1,594.63**	**1,752.05**	**1,925.17**	**2,115.56**	**2,324.97**	**2,555.28**	**2,808.62**	**3,087.30**	**3,393.86**	**3,731.12**	**4,102.16**	**4,510.40**	**4,959.57**	**5,453.81**	**5,997.67**	**6,596.14**	**7,254.74**	**7,979.55**	**8,777.25**	**9,655.20**
Vehicle Operating Cost Savings (m NGN)		167.81	179.56	192.12	205.57	219.96	235.36	251.84	269.46	288.33	308.51	330.11	353.21	377.94	404.39	432.70	462.99	495.40	530.08	567.18	606.89
Time savings (m NGN)		1,426.82	1,572.50	1,733.05	1,909.99	2,105.00	2,319.92	2,556.79	2,817.83	3,105.53	3,422.61	3,772.06	4,157.19	4,581.63	5,049.42	5,564.97	6,133.15	6,759.34	7,449.47	8,210.06	9,048.31
Discounted Values																					
Cost (m NGN)	2,169.21	19.37	17.29	15.44	13.79	12.31	10.99	9.81	8.76	7.82	6.98	6.24	5.57	4.97	4.44	3.96	3.54	3.16	2.82	2.52	2.25
Benefits (m NGN)	-	1,423.77	1,396.72	1,370.30	1,344.48	1,319.25	1,294.59	1,270.48	1,246.91	1,223.86	1,201.32	1,179.27	1,157.71	1,136.61	1,115.96	1,095.75	1,075.97	1,056.61	1,037.66	1,019.10	1,000.92
B-C (m NGN)	-2,169.21	1,572.93	1,730.36	1,903.48	2,093.87	2,303.27	2,533.59	2,786.93	3,065.61	3,372.17	3,709.43	4,080.47	4,488.71	4,937.88	5,432.12	5,975.97	6,574.45	7,233.05	7,957.86	8,755.55	9,633.50
Discount rate							**12%**														
Cost (m NGN)							**2,331.24**														
Benefits (m NGN)							**23,967.24**														
eNPV (m NGN)							**21,636.00**														
B/C Ratio							**10.28**														
eIRR							**83%**														
VOC Savings (m NGN)							**2,009.82**														
Timesavings (m NGN)							**21,957.42**														

TABLE 45: ECONOMIC ANALYSIS OF MILE 12-IKORODU ROAD

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COST (m NGN)	37,573.23	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73
Construction Cost (m NGN)	37,573.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance Cost (m NGN)		375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73	375.73
BENEFITS (m NGN)		18,601.03	20,432.03	22,445.20	24,658.81	27,092.96	29,769.79	32,713.68	35,951.44	39,512.62	43,429.73	47,738.58	52,478.59	57,693.17	63,430.11	69,742.05	76,686.93	84,328.59	92,737.29	101,990.43	112,173.25
Vehicle Operating Cost Savings (m NGN)		2,123.65	2,272.31	2,431.37	2,601.57	2,783.67	2,978.53	3,187.03	3,410.12	3,648.83	3,904.25	4,177.55	4,469.97	4,782.87	5,117.67	5,475.91	5,859.22	6,269.37	6,708.22	7,177.80	7,680.25
Time savings (m NGN)		16,477.38	18,159.72	20,013.83	22,057.24	24,309.28	26,791.26	29,526.65	32,541.32	35,863.79	39,525.48	43,561.03	48,008.62	52,910.30	58,312.44	64,266.14	70,827.71	78,059.22	86,029.07	94,812.63	104,493.00
Discounted Values																					
Cost (m NGN)	37,573.23	335.48	299.53	267.44	238.78	213.20	190.36	169.96	151.75	135.49	120.98	108.01	96.44	86.11	76.88	68.64	61.29	54.72	48.86	43.63	38.95
Benefits (m NGN)	-	16,608.06	16,288.29	15,976.05	15,671.12	15,373.27	15,082.30	14,798.01	14,520.18	14,248.65	13,983.21	13,723.70	13,469.95	13,221.78	12,979.06	12,741.61	12,509.30	12,281.98	12,059.52	11,841.78	11,628.64
B-C (m NGN)	(37,573.23)	18,225.30	20,056.30	22,069.47	24,283.07	26,717.23	29,394.06	32,337.95	35,575.71	39,136.89	43,054.00	47,362.85	52,102.86	57,317.44	63,054.38	69,366.31	76,311.20	83,952.86	92,361.56	101,614.70	111,797.52

Discount rate	12%
Cost (m NGN)	40,379.75
Benefits (m NGN)	279,006.46
eNPV (m NGN)	238,626.72
B/C Ratio	6.91
eIRR	59%
VOC Savings (m NGN)	25,434.66
Time savings (m NGN)	253,571.81

5.4 SUMMARY OF VOC SAVINGS

The intervention by LAMATA on the Mile 12 - Ikorodu Corridor and the rehabilitation works on Wempco and Akin Adesola Roads led to significant increase in travel speed, reduction in travel time and improvement of level of service on the roads. Improved speed and general efficiency of operation on the roads also led to a reduction of cost of operating vehicles, viz: fuel costs, wear and tear on tires, general maintenance and repair costs, and a reduction on CO_2 emission. The Webtag method was employed to calculate the VOC savings on the roads over a timeframe of 20 years. The VOC savings for the different roads are as follows:

TABLE 46: SUMMARY OF VOC

	Wempco Road	Akin Adesola Road	Mile 12-Ikorodu Corridor
VOC Savings (Million Naira)	2,009.82	1,409.18	25,434.66

5.5 SUMMARY OF TIME SAVINGS

Time savings remains one the foremost benefits that must be captured in every transport project improvement. LAMATA's intervention on the corridor and the roads led to considerable savings on time by commuters using the roads. The summary of the time savings along the corridors is given below:

TABLE 47: SUMMARY OF TIME SAVINGS

	Wempco Road	Akin Adesola Road	Mile 12-Ikorodu Corridor
Time Savings (Million Naira)	21,957.42	9,379.56	253,571.81

5.6 ERR/NET PRESENT VALUE (NPV) FOR THE EXTENDED BRT ROUTE AND ROADS

A comprehensive analysis of the the Mile 12 to Ikorodu corridor, and WEMPCO and Akin Adesola Roads roads was conducted to verify the benefits derived from the implementation of the projects. In assessing the impact of the project, the eIRR and the NPV were computed to measure the economic viability of the projects. The NPV was discounted at a rate of 12% over a 20-year period. The results are as presented below:

TABLE 48: ERR/NPV

	Wempco Road	Akin Adesola Road	Mile 12 - Ikorodu Corridor
NPV (Million Naira)	21,636.00	9,017.43	238,626.72
eIRR (%)	83 %	53 %	59 %
BCR	10.28	6.09	6.91

The corridor and the roads showed positive returns on NPV, an indication that the project is viable and will yield positive returns over and beyond the investment period. The eIRR, the rate of return remained very high, even when subjected to a discount rate of 12 %, which is much higher than the lending rates of the multilateral lenders to the project. The Benefit Cost ratio which must be greater than 1, shows the comparison between the benefit and the cost of the projects, was positive for the three projects. In summary, the analysis shows that the projects even though a quasi public sector/PPP project, appears to be viable and bankable, and shows good value for money and good return on investment.

5.7 SENSITIVITY ANALYSIS

A sensitivity analysis was carried out to measure the likely results of variations of different sources of uncertainty of inputs. The impact of variations on the cost and benefits was examined to ascertain the viability of the projects at different assumed levels of internal and external influence on the project. Three different scenarios of sensitivity analysis were considered to test the viability of the project:

Alternative 1: Capital costs increased by 20%
Alternative 2: Benefits reduced by 20%
Alternative 3: Capital costs +20% and benefits -20%

The results showed that the projects remained economically viable for all the scenarios. The result of the analysis is given in the table below:

TABLE 49: SENSITIVITY ANALYSIS

Alternatives	Wempco Road			Akin Adesola Road			Mile 12-Ikorodu		
	NPV (m'N)	eIRR(%)	BCR	NPV (m'N)	eIRR(%)	BCR	NPV (m'N)	eIRR(%)	BCR
Base Case	21,636.00	83 %	10.28	9,017.43	53 %	6.09	238,626.72	59 %	6.91
Capital Costs (+20%)	21,216.46	70 %	8.71	8,663.17	46 %	5.08	233,770.85	51 %	6.17
Benefits (-20%)	16,842.55	68 %	8.22	6,859.68	44 %	4.87	182,825.43	49 %	5.53
Capital Costs ((+20%; and benefits (-20%)	16,423.01	58 %	6.97	6,505.42	38 %	4.04	177,969.56	43 %	4.93

5.8 CONSTRUCTION COSTS MILE 12-IKORODU

TABLE 50: CONSTRUCTION COSTS MILE 12-IKORODU

S/N	Contract	Date of Award	Contractor	Contract Sum (₦)
1	Mile 12- Ajegunle Road Alignment Contract (Urban Section 1)	Oct-12	CCECC	11,100,079,308.90

2	Ajegunle- Majidun Road Alignment Contract (Rural Section)	Aug-12	CCECC	8,758,859,929.24
3	Majidun - Ikorodu Round about Road Alignment Contract (Urban Section 2)	Aug-12	CCECC	7,597,923,314.21
4	BRT Bus Depot/Garage	Dec. 2013	CCECC	2,499,586,175
5	6 No Pedestrian Bridge	Dec. 2013	LOPEK Construction Ltd	1,643,178,519.19
6	BRT Bus Terminal at Mile 12	Mar. 2014	ATIDOLF Nigeria Ltd.	1,244,828,233.00
7	BRT Bus Terminal at Agric & Ikorodu	Mar. 2014	EBUN Links Construction	736,260,606.28
8	7 No BRT Bus Shelter	Mar. 2014	NATUHAB Consultants Ltd	291,989,514.32
9	8 No BRT Bus Shelter	Mar. 2014	NATUHAB Consultants Ltd	466,500,564.00
10	Street Lighting (Ajegunle -Ikorodu)	Sept. 2014	CCECC	889,611,646.22
11	Detailed Design & Supervision Consultancy Services	Aug-12	AEC /SGD/HPR/WNDL Consortium	983,310,500.00
12	Reconstruction of BRT Bus Depot at Ketu (Lot 1)	Dec. 2015	STRABIC Construction Ltd	958,070,293.00
13	Reconstruction of BRT Bus Shelters (Lot 2)	Dec. 2015	NATUHAB Consultants Ltd	787,485,798.68
14	Civil Works, Drainage System, Lay byes, Merges & Diverges, Kerbs at Stations & Terminals and TSM along Mile 12- TBS (Lot 3)	Dec. 2015	Ebun Links Construction	479,141,722.50
13	Consultancy Services for the Deailed Engineering Design and Supervision of Infrastructure for the Lagos Bus Rapid Transit (BRT) Upgrade - Phase 2 (SUPERVISION)	Nov-15	YOLAS Consultants	119,718,505.57
Total				**37,573,234,129.81**
The Consortium of AEC/SGD/HOR/WNDL were paid part in $				**$1,749,105.00**

5.9 CONSTRUCTION COSTS REHABILITATED ROADS AND IKEJA BUS TERMINAL

TABLE 51: CONSTRUCTION COSTS REHABILITATED ROADS

S/N	Contract	Date of Award	Contractor	Contract Sum (N)
1	Rehabiliatlion and Upgrade of Wempco Road	June 19, 2013	Arab Contractors Nig. Ltd.	1,981,127,522.13
	Additional Works		Arab Contractors Nig. Ltd.	122,620,728.00
	Consultancy Supervision	September 25, 2013	Enplan Group	65,460,833.33
	Total, WEMPCO Road			**2,169,209,083.46**
2	Rehabiliatlion and Upgrade of Akin Adesola Road	August 1, 2012	HITECH Construction Company Ltd.	1,580,935,735.39
	Consultancy Supervision	October 2, 2012	Enplan Group	67,260,833.33
	Total, Akin Adesola Road			**1,648,196,568.72**
3	Ikeja Bus Terminal	January 24, 2017	Planet Projects Limited	3,285,015,077.79
	Consultancy Supervision	February, 2017	Pentagon Engineering Consultants	74,395,000.00
	Total, Ikeja Bus Terminal			**3,359,410,077.79**

5.10 LOGFRAME ANALYSIS

Hierarchy of objectives	Key performance indicators	Achieved results	Means of Verification
Project Development Objectives *1. Improve mobility along prioritized corridors.* *2. Promote a shift to more environmentally sustainable urban transport modes.*	1. Reduced travel time along BRT corridors. 2. Reduced household expenditure on transport along BRT corridors. 3. Increase in number of passengers carried per standard bus per day. 4. Length of road network rehabilitated on Lagos metropolitan network. 5. Number of direct beneficiaries by gender/year. 6. Number of indirect beneficiaries by gender/year	Travel time has been reduced from 120 minutes to 70 minutes along the corridor from Ikorodu to TBS. Household expenditure has increased to N12,000.00 from IKorodu to TBS. The number of passengers carried per standard bus per day is 447 passengers per day. 3.55 km of road out of the 5.7km length of road network has been constructed and rehabilitated on Lagos metropolitan network. Female = 39.2 %, out of total beneficiaries of 52,338,000 =20,516,496 Female =39.2 of total beneficiaries per annum of 44,432, 182 = 17,417,415	ICR field survey/GPS measurement ICR field survey/Household and Socio-economic survey ICR field survey/ ridership data form Franchisee ICR field survey/GPS measurement ICR field survey ridership data/ Traffic survey Traffic count data/ traffic survey
Global Environmental Outcome *1. Promote an incremental shift to more environmentally sustainable urban transport modes among users with relatively high carbon footprint*	1. Increase in percent of trips made by BRT among households owning cars or motorbikes. 2. Reduced CO2 emissions from vehicles along BRT corridor.	Percentage of trips by households owning cars increased by 26% The implementation of the BRT reduced the CO_2 emission along the corridor by -5.9%	ICR Field survey (socioeconomic and traffic survey and Household survey) Periodic impact assessment survey report Feb, 2017 GHG Data collection report, 2016
Intermediate Outcomes			
Component 1: Institutional development and capacity building *Local capacity to manage transport is enhanced.* *Local capacity to carry out transport supply and travel demand analysis is established (including capacity to estimate CO2 emissions of counterfactual scenarios).* *LAMATA functions are consolidated in permanent headquarters.* *Kano pursues development of public transport network.*	1. Number of Transport Planning Units established and functioning. 2. Number of study tours and training programs, targeted at strengthening the planning and implementation capacity in LAMATA and other state transport agencies. 3. Updated travel demand and network models, databases and other tools (such as GIS) are available for use. 4. LAMATA building completed. 5. Strategic conceptual transport planning framework for Kano developed.	At ICR, 6 Transport Planning Units established and functioning in 3 LGAs 2 in LCDAs of the 3 LGAs 383 courses in total out of which 254 were local and 75 international 7 Study Tours in 2013, and 1 in 2016 The Travel Demand Model was updated and the GIS database was also updated. Enterprise GIS was developed thereby making Geo-referenced data readily available LAMATA building completed Kano State embarked on development construction programme in Kano Metropolis; FGN to connect Kano and Lagos by rail; Master plan for Kano undertaken; Kano embarked on	ICR field survey ICR Survey –data from LAMATA HR Unit Model Development Technical Report and Enterprise GIS report LAMATA information ICR Findings and analysis of 3 Reports on Kano Transport.

Hierarchy of objectives	Key performance indicators	Achieved results	Means of Verification
		Transport Reform; Kano State received GEF Funding for public Transport delivery capacity in Kano	
Component 2: Improvement of public transport infrastructure and enhancement of traffic management systems 1. *Service area for BRT provision is greatly expanded.* 2. *Mobility for public transport users along BRT corridors improves.* 3. *Two-wheeler users and car drivers show increased awareness of the mobility benefits of the BRT.*	1. BRT corridor developed along Oshodi- Mile2-Obalende. 2. BRT corridor developed along Oshodi- Mile 12-Ikorodu. 3. Bus service vehicle kilometers per month along BRT corridors. 4. Average travel speed of public transport services along BRT corridors. 5. Percent of public transport users rating their service as highly or somewhat unreliable. 6. Percent of BRT users who report having a car or two-wheeler available for this public transport trip. 7. Percent of two-wheeler and car owners who report having a somewhat or highly favorable impression of BRT service.	Not achieved for reasons of lack of right of way. FGN owns the right of way and process of concession is on-going. Proposed for follow up LUTP BRT corridor extension developed along Mile 12-Ikorodu achieved 1,832,377 km per month Average travel speed of public transport services along BRT corridors was 31.2km/hr 8.5 Percent of public transport users rated their service as unreliable. 22.96 per cent reported having a car or two-wheeler. 89.4 Percent of two-wheeler and car owners reported having a somewhat or highly favorable impression of BRT service.	Reconnaissance survey at ICR Inception ICR Survey ICR survey ICR field survey
Component 3: Improvement of Lagos State metropolitan road network *Improved efficiency of transport network supporting the BRT operation.*	Average travel speed along resurfaced and rehabilitated roads.	Average travel speed along resurfaced and rehabilitated roads was estimated at 32km/hr	**ICR Field Survey/GPS**
Component 4: Project Management and monitoring *Project benefits and co-benefits are effectively monitored and quantified.*	1. Financial and technical performance of project based on audits. 2. Calculated CO2 emissions based on observed vehicle activity and fuel consumption measurements. 3. Appropriate safety indicators (to be specified in first year of project implementation) along intervened corridors. 4. Ambient concentrations of pollutants (to be specified during first year of project implementation) along intervened corridors.	90 % Drawdown at ICR; Technical Audit Report rated project: "Satisfactory" • 3 Stations for measuring air quality and emission were developed along the corridor • Four Resettlement Action Plans (RAPs) conducted and implemented but issues abound that threaten success. • Study of Emissions conducted	Financial Management and Annual audit reports ICR Survey ICR Survey/Focus Group Discussions with PAPs and LAMATA

6. PROJECT PERFORMANCE

6.1 ACHIEVEMENT OF OBJECTIVES AND OUTPUTS/KEY PERFORMANCE INDICATORS

TABLE 52: PROJECT MONITORING RESULTS

	PDO Level Result Indicator	Unit of measure	Baseline	End of project
1	**Indicator One**: Average time spent by individuals on travel along project corridor per trip (Ikorodu-TBS)	Minutes	120	70
2	**Indicator Two** Money spent monthly by poor individual on bus travel along project corridor (Mile 12 - TBS)	Naira	4120	12000
3	**Indicator Three**: Average No. of passenger carried/Standard bus/day along project corridor	Pass/bus/day	500	447
4	**Indicator Four**: Number of direct beneficiaries (of which % are women)	Average/day	437,031	165,000 (39.2% women =64,680)
5	**Indicator Five**: Number of indirect beneficiaries measured as the number of people who could travel from Ikorodu to Lagos Mile 12 in 45 minutes or less	PR		121,732 (39.2% women = 47,719)
6	**Indicator one:** Percent of BRT users report owning a car or two wheeler		14	22.89
7	**Indicator two:** Calculated CO2 emissions based on observed vehicle activity and fuel consumption measurements	kilotons	371	349
28	***Intermediate Result indicator One***: Number of Transport Planning Units established and functioning		2	6
9	***Intermediate Result indicator Two:-***% of activities in annual plan achieved on target.	%	65%	90%
10	***Intermediate Result indicator Three:*** Updated travel demand and network models, databases, and other tools (such as GIS) are available for use			Achieved
11	***Intermediate Result indicator Four:*** Concept for hubs and terminals program in Kano developed.			Achieved
12	***Intermediate Result indicator One***: Physical completion of works			Achieved
11	***Intermediate Result indicator Two****:* Average travel speed of public transport services along BRT corridor (kph)			31.3km/hr
15	***Intermediate Result indicator Three:*** Average travel time of formal public transport Mile 12-Ikorodu	Minutes	120	24.08
17	***Intermediate Result indicator Four****:* Percent of public transport users rating their BRT service as satisfactory			91.5%

18	***Intermediate Result indicator Five*:** Percent of two wheelers and car owners who report having a somewhat or highly favorable impression of BRT services		42	89.4%
20	***Intermediate Result indicator One: R***oad rehabilitated, non rural (Lane km)	Lane km	5.5	3.5km
21	***Intermediate Result indicator Two*:** Average travel speed along resurfaced and rehabilitated roads		12 kph	32 km/hr
22	***Intermediate Result indicator One*:** Financial and technical performance of project based on audits			Satisfactory
23	***Intermediate Result indicator Two*:** No. of accidents per 100,000 vehicle-kms: - Fatal*** - Serious** - Minor*	incidents	 14 31 94	 11 25 76
24	***Intermediate Result indicator Three*:** Ambient concentration of pollutants along intervened corridors			Studies conducted Monitoring stations set up

6.2 LAMATA PROJECT MONITORING RESULTS

The M & E unit in LAMATA was conscientious in tracking the KPIs from LUTP2 onset and through its life span and the results which was made available to the ICR Consultant are contained in Appendix 3. The LAMATA in-house results correspond in one material regard which is that majority of the KPIs were achieved and where they were off target the explanations are inviolable in pointing to circumstances beyond LAMATA's control as it is in the case of the increased expenditure on transportation on the BRT corridor Ikorodu-TBS which occurred when the travel fares were increased by the Franchisee with the concurrence of LAMATA/LASG and the fare increase was economically logical. It is also important to say that even with the increase a comparison with alternative means of transport on the corridor shows that the BRT is still the more cost expedient and comfortable way to travel.

6.3 PROJECT FINANCIAL PERFORMANCE

6.3.1 SCHEDULE OF DRAWDOWN ON LUTP2

TABLE 53: SCHEDULE OF DRAWDOWN

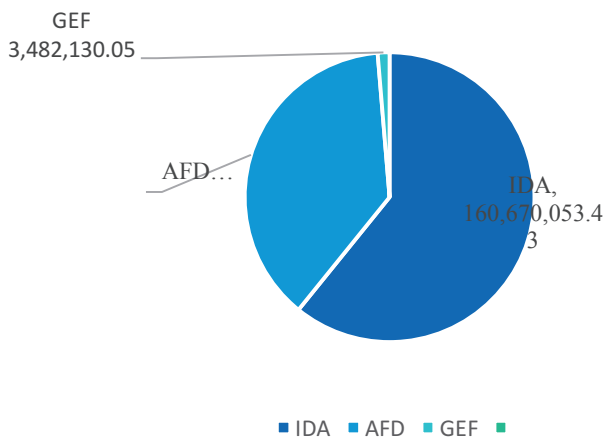
Date	Description	IDA	AFD	GEF	Total
		$	$	$	$
	Credit	190,000,000.00			
	Loan		100,000,000.00		
	Grant			4,500,000.00	
					294,500,000.00
Dec 01, 2011	LM02/001	9,444,958.00			
April 05, 2012	LM02/002G			307,102.00	
Jul 03,2012	AFD001		20,003,590.00		
Nov. 05, 2012-D.P	LAM2/004D	8,517,526.94			

Dec.05, 2012	LAM2/005	7,902,756.40			
Apr. 15, 2013	AFD002		15,000,000.00		
May 27, 2013	LAM2/008	35,408,940.15			
Oct. 10, 2013	AFD003		24,000,000.00		
Oct. 31, 2013	LAM02/007G-A			505,192.09	
Mar.12, 2014	LAM2/010	29,109,061.92			
Mar 18, 2014	AFD004		17,000,000.00		
Jun 18, 2014	LAM2/011A	9,391,507.41			
Jul 03, 2014	LAM02/012GEF			107,944.10	
Oct. 09, 2014	LAM02/013GEF			1,050,230.18	
Nov. 03, 2014	AFD005		14,000,000.00		
Jan 21, 2015	LAM2/015	21,575,679.20			
Feb 19, 2015	AFD006		7,300,000.00		
Apr. 15, 2015	LAM02/016A	10,168,927.14			
Jul 02, 2015	LA02/018A	11,906,326.07			
Sep 29, 215	LAM02/020GEF	-		1,174,887.05	
Oct. 9, 2015	AFD007A		2,696,410.00		
Oct. 12, 2015	LAM02/019	6,344,661.36			
Jun 10, 2016	LAM02/022GEF	-	-	336,774.63	
Jun 17, 2016	LAM02/021	10,899,709.84			
Total Drawdown		160,670,053.43	100,000,000.00	3,482,130.05	264,152,183.48

Notes on drawdown:

Exchange Rate loss SDR-USD	14,377,036.29	-	-	-
Credit/Loan/Grant	190,000,000.00	100,000,000.00	4,500,000.00	294,500,000.00
Balance	14,952,910.28	-	1,017,869.95	30,347,816.52
% Drawdown	85%	100%	77%	90%

CHART 16: LUTP2 DRAWDOWN CHART ($)



6.3.2 SCHEDULE OF DISBURSEMENTS

As at December 31, 2016, disbursements were as follows:

- IDA, 85%, GEF, 77% and AFD, fully disbursed.
- IDA: $160.7 million
- AFD: $100.0 million
- GEF: $3.48 million

This gives an average disbursement of 90% on the whole project. Detailed breakdown of disbursements are contained in ***Appendix 4***

6.4 BANK AND BORROWER PERFORMANCE

The WB and the AFD were on a joint mission to LAMATA and the ICR Team were able to discuss with them to seek their views on the performance of LAMATA in the implementation of the LUTP2. The following is a summary of comments:

- If the Bank had any misgivings that the transition in LAMATA from the former MD who became the Commissioner for Transport to the current MD, Engineer Dabiri might affect the LUTP2 implementation, such misgivings turned out to be unfounded in that the transition was seamless and the Bank is pretty much satisfied with the management of the LUTP 2 in LAMATA under both heads of the Agency which is a positive attribute of LAMATA that capacity is developed and retained in-house and the LAMATA is an institution not built on individuals but on positions and structure that facilitates sustainability. The same applies for the Procurement and Finance Directorates. Staff within the organisation have succeeded those promoted within the organisation.
- The Bank also attests to responsiveness of LAMATA and say that the Agency is quite demanding with their work and in seeking to move the processes leading to approvals of procurement and disbursement quicker. In this wise the Bank said that to be more responsive to demands from its many clients a new system is being proposed to replace the email communication channel to another platform that will make for a more efficient call and response time. This will probably be in use by the time the LUTP3 begins if the same is approved by the WB Management in Washington.
- The Bank remarked on the process of disbursements to contractors and consultants which has somewhat become slow comparatively to what used to obtain under the last administration and said that was a concern but that was an issue for LAMATA to work out within the system of governance.
- On the issue of payment challenges the MD explained that rather than it being a function of bottleneck with the Governor's office it was perhaps more of the bureaucracy around the need to keep proper records in the Oracle computerised accounting system of the LASG which is a central system and time may be delayed in the entry of data because of the volume of transactions and a queue system.
- The AFD representative on the Mission remarked that LAMATA's ability to manage effectively and efficiently a tripartite funding arrangement (IDA, AFD and GEF) and to report at appropriate deadlines was a credit to the Agency's capacity to plan and implement. The AFD thus commended LAMATA.

- From the comments of the MD on behalf of LAMATA, the Agency has had a very productive and collaborative relationship with the WB and the other funding partners.
- The Bank also admitted that the subcomponent on the establishment of functional TPUs within LGAs had not achieved the expected outcomes and that this was a learning curve for the Bank in seeing how to foster acceptance, buy-in and integration of such a laudable project in a multi-layer power structure such as the State and LGA/LCDA.
- The Bank also said that the Ikeja Bus Terminal project being one which came into the LUTP2 not as an original project component and which is still actively ongoing poses a challenge as to measurement of output and economic analysis. That the Bank understands this challenge.
- The LAMATA MD said that the Bus Terminal Project comes from the Bus Reform Agenda of the current LASG and is supported by LAMATA studies on Bus Route Network and sits quite comfortably within the overall STMP and that the project will definitely achieve outcomes of decongesting traffic, stop indiscriminate parking of buses within the Ikeja environs and will generally have an effect in calming traffic in the metropolis.

6.5 CHALLENGES/CONSTRAINTS TO IMPLEMENTATION AND OUTCOMES

6.5.1 MAINTAINING INSTITUTIONAL FRAMEWORK OF LAMATA

A few pointers to some erosion of the powers of LAMATA under the Act setting it up are beginning to surface especially in the LUTP2 and this problematic development needs to be addressed for the sustainability of LAMATA and its functions.

- Every new administration (Government) should be briefed on the parastatals that are subsisting and their respective functions in the scheme of things. In the case of LAMATA, there had always been the a possibility that other agencies of government involved in the transport sector would have challenges working with LAMATA given the latter's wide powers as prescribed by law for enunciating policy and developing and supervising transport reforms. It was for this purpose that roads styled DRN were allotted to LAMATA's control. In 16 years administration of the pre-nultimate and past administration LAMATA had carved a niche that had become acceptable by the Ministry of Transport, Ministry of Works, LASTMA etc and a synergistic relationship had developed. It was also for this purpose that LAMATA has a board which comprises most of the stakeholders in Government so that everyone who ought to know would know the functions of LAMATA. Field findings however reveal that the LAMATA Board is not effective and hardly meet. Moreover, LAMATA powers and functions are being done outside LAMATA. Some infrastructure within the Metropolitan Lagos are being undertaken directly by the State Government sometime under the Ministry of Transport or by the State Governor with LAMATA sometimes not being in the know or have been brought in late in the picture as advisory. While the Consultants would not be categorical in criticizing this trend, the Consultants sound a note of caution that when functions of an agency such as LAMATA are derived from Law these functions cannot be abrogated by LAMATA and in similar vein not by the Governor. It is only a law of the State House of Assembly that can change the powers of LAMATA. The note of caution is sounded also to prevent a situation in which LAMATA is weakened as a transport planning Authority and all the capacity built over the years is eroded thereby confirming Nigeria's bane which is a circle of unending capacity building and capacity losing.

6.5.2 LAMATA SWOT ANALYSIS

TABLE 54: LAMATA SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• Legal personality- LAMATA is a creation of Statute with its powers so derived by law it is in a position to even challenge any infraction or incursion into its roles • Dedicated income stream through the Transport Fund which is also a creation of Law and the opportunities for other income streams from franchises and advertisement • Highly qualified technocrats as staff recruited globally. • Market competitive staff salary to attract best staff even from diaspora. • Semi-autonomy which shields the Agency from rampant political interference. • Long range strategic master plan and studies on transport models in support of the STMP with actionable short term action plans financed by LUTPs. • LAMATA has developed a sustainability or sustainable transportation plan and LAMATA identifies sustainability objectives in other plans (i.e. long-range transportation plan including non-motorised transportation and reduction in carbon emissions) • Monitoring & Evaluation is strong and credible and set indicators are tracked throughout project lifespan and beyond. • Performance management system measures progress toward sustainability targets and goals • A credible brand has developed and a strong external relations unit that promotes the brand and engage stakeholders.	• Change of Government gives rise to anxieties thus autonomy is clearly not absolute and the Agency lacks the legal muscle to flex even when it can flex. • Too many lines of approvals are now infringing on the autonomy somewhat guaranteed by law in discharge of its financial obligations to contractors and consultants. LAMATA is now late on payments for bids contracted and this threatens delivery of its mandate. • Policies and system planning prioritize maintenance and rehabilitation of existing infrastructure. • Coordination between state, multi-state (e.g Lagos & Ogun) and LGA still less than optimum especially as seen in the challenges with the TPUs • Degree of collaboration with agencies that have jurisdiction or influence over land use decisions and development patterns that support a sustainable transportation system is somewhat weak especially as regards Resettlement Action Planning and execution. • Degree of coordination with other transportation entities (public transit providers, private transit providers, port authority, freight railroads, etc.) to leverage opportunities (e.g., develop multi-modal corridor plans, identify funding priorities) is present but needs to be tapped into more for efficient utilization of resources especially human capacity utilization. • Counterpart funding paucity
OPPORTUNITIES	**THREATS**
• LAMATA can become a trend setting transport agency especially if it devolves more cutting-edge technology such as ITS and SMART systems to Lagos. • LAMATA can be a resource for the federating States of Nigeria as Consultant and can earn fees for rendering transport modelling and reform services. • LAMATA should focus on safety technologies that will bring about accident reduction. • Non-motorized transportation can become a very sustainable option for the future of Lagos so LAMATA needs to be in the forefront of policy and action to promote safe non-motorized transport. • LAMATA can partner with Universities in Nigeria especially in Lagos and set up a centre for transportation research excellence and training. • LAMATA can create a Transport Library (physical and digital	• Change in government administration resulting in redirection of priorities and policies related to sustainable transportation Opportunity. • A climate of political instability regarding transportation like if another government ignores LAMATA and deals with other agencies or persons who do not follow the STMP. • Political will in implementing the STMP in the manner- that consistency in policy and implementation. • Sustained investment in transportation especially if the PPP contracts fail in any way. • Government eroding powers of LAMATA by giving contracts outside LAMATA for roads in LAMATA's purview. • Funding paucity • Two layer government eg state and LGA with no nexus established on transportation issues e.g TPU funding and staffing and functions

6.5.3 OTHER CHALLENGES FROM SURVEY

The following challenges have been documented under the appropriate sections in which they were observed but suffice to give a summary in this paragraph:

- From the HR and Admin unit comes the issue of funding constraints sometimes which sometimes mean some training can not be provided especially at the time when the exchange rate was extraordinarily high it meant some courses became too expensive to be justified. If those courses were

critical, the capacity to be acquired would have been lost because of funding constraints. Sometimes also recruitments for staff especially for specialised positions are difficult to source locally and this leads to delay in appointments.

- The Finance and Procurement unit have a few challenges including, that; approval process for assignment, award of contract and payment now takes longer than hitherto as a result of involvement of the Governor's office in the Lagos State Secretariat, Alausa as well as the new layer of oversight that has recently (during the current administration of the incumbent Governor Ambode) been instituted in the Project Financial Management Unit (PFMU) of the State Ministry of Finance where an approval or a "sign off" is required before LAMATA can disburse. This is atypical of the process under LUTP 1 when after a "no objection" from the WB, LAMATA could complete the contract and disburse.
- The challenges and constraints experienced by the External Relations Unit relate to funding. The Unit believes that consultation is imperative during project appraisal and prior to budget preparation for LAMATA institutional development and operating costs. The budget for the Unit in the LUTP2 in retrospect appears to have been inadequate because of the lack of consultation. The paucity of funds meant that the unit could not publish many informative documents as it would have deemed necessary such as leaflets, newsletters, etc.
- There are a few challenges to efficiency in the new payment system that has emerged with the change of administration. Training scheduling and approval process is now said to be long so planning has to take about 6 months ahead resulting in some training especially the foreign ones being missed. Hitherto all approvals were done in-house but with external input presently the system is fraught with delay.
- There are also constraints in getting the pool of professional staff that are needed in some departments. Hitherto LAMATA had a lot of resources to headhunt Nigerians abroad who were already working in the sectors for which the skills gap was to fill, but current economic challenges do not permit that at present.
- From the Bus Systems Directorate comes the challenge of traffic congestion experienced by the BRT buses during peak hours on the non-segregated lane areas of the Ikorodu BRT corridor, for example at Ketu – Mile 12 and Barracks. These continue to pose major challenges to the operations of the BRT as infringement of the BRT lane by other operators deny the franchised operator the exclusivity to road use. Two wheelers are most commonly guilty of the violation and the continuous infringement on the corridor has led to avoidable accidents on the corridor. These accidents have also led to increased repair costs and increased downtime for the buses that are laid out of service. This has also meant increased claims for insurance and increased insurance premiums.
- Traffic congestion experienced by the BRT buses during peak hours on the non-segregated lane areas of the Ikorodu BRT corridor, for example at Ketu – Mile 12 and Barracks, continue to pose major challenges to the operations of the BRT as infringement of the BRT lane by other operators deny the franchised operator the exclusivity to road use. Two wheelers are most commonly guilty of the violation and the continuous infringement on the corridor has led to avoidable accidents on the corridor. These accidents have also led to increased repair costs and increased downtime for the buses that are laid out of service and had led to increased claims and insurance premiums. It is recommended that the enforcement of the exclusivity right of the BRT buses be enforced and monitored and offenders awarded high penalties.
- The Traffic Planning Unit (TPU) concept, study and implementation were all credibly discharged but sustainability is clearly dicey for the following reasons:

- There is inadequate staffing of all the TPUs in the LGAs where they exist. Despite the recruitment and training of staff for the TPUs the intention of retention of cognate capacity is defeated by the un-informed decision to transfer these trained staff out of the LGA/LCDA that can utilize their special skills to other LGA/LCDA that can not so do.
- There appears to exist an overlap of duties within the LGA because there is still the existing Transport Unit (TU) in the LGAs and this is under works and infrastructure of the LGA and there is a supervisory Councillor, thus there is a conflicts zone which is militating against efficiency of the TPU.
- There is ambivalence around the ownership or institutional legitimacy of the TPU. While the LGA/LCDAs see the TPUs as belonging to LAMATA, the latter created them to belong to the LGA/LCDAs. While this ambivalence persists, the TPUs' very existence and effectiveness will remain in jeopardy.
- Funding is a major constraint because a sustainable funding structure has not been institutionalized. By this is meant that the LGA/LCDA due to misunderstanding of the ownership, objectives and purpose of the TPU.
- The Local Government Service Commission does not appear to be working in concert with LAMATA in regard to the staffing of TPUs as the Commission keeps transferring staff specifically recruited for the TPUs out of the LGA/LCDA they are specifically deployed to. There is a lacuna in communication in this development.

- The Legal Unit of LAMATA may need to be more proactive and practice more of forecast problem analysis. There are a few issues that from the onset could have been anticipated such as the tenure of land on which PAPs will be resettled. A new challenge is the one of the Ikeja Bus Terminal. Whereas it may seem that a Tripartite relationship is created between LASG/LAMATA on one hand, Persianas Limited on the second hand and Odu'a Investment Company Limited on the third hand, but in reality that is not the case. The only relationship established is between Persianas and LASG/LAMATA. The Bus Park may face issues in future that may jeopardise its efficiency. If Persianas is in breach of its obligations to Odu'a then the Bus Park may be in breach. It should also imperative that Persianas obtains the consent of Odu'a to the sublease because this is usually always the natural expectation in a deed of lease. It is important that LAMATA legal department ensures that LAMATA's interest is adequately protected. Perhaps it would have been more expedient to but the lease totally off Persianas, but since that has not been done there is still a need to register the interest of LASG/LAMATA with Odu'a Investments which is the Head Lessor.

6.6 CONSULTANT'S OVERALL ASSESSMENT AND RATING OF LAMATA'S LUTPE IMPLEMENTATION

The following represents the assessment of the ICR Consultant of the LAMATA's performance on the implementation of the LUTP2. In the main the assessment rates LAMATA's performance as highly satisfactory. A traffic light indicator system has been adopted in which green represents excellent performance, amber signifies performance that is headed in the right-direction but which have suffered some implementation problems or have achieved unexpected outcomes that are not quite positive and red signifying a poor outcome. The Assessment is the view of the Consultants and in the main just for LAMATA' reflection.

	Component Details	Comments informing Assessment	Assessment		
					
1.A	TRAINING, STUDY TOURS AND TWINNING	Training was one of LAMATA's best practices and achievement against planned was a little short of			
I.B	CONSTRUCTION OF LAMATA CORPORATE HEAD OFFICE	Although a Head office has been provided, this was not the actual planned head office, LAMATA however should be praise for pragmatism is praised for pragmatism. The reason for a leas than perfect score is because LAMATA is yet to complete the Head office.			
1.C	UPDATE OF LAMATA'S PLANNING DATABASES AND TOOLS,				
I	Extension of the Strategic Transport Master Plan and Travel Demand Model to cover the Mega Region	Studies completed and is being used actively in implementation of all projects both LUTP2 and LASG road projects.			
Ii	Value of time and transport elasticity study for the Mega City Region	Studies completed and the parameters for the varied indices of values of time, ERRs etc are being used by LAMATA and Consultants undertaking economic analysis on LAMATA projects.			
Iii	Freight Demand Study	Completed and complements the STMP and MTAS and forms a strategic future tool for integrating and overview of transport issues in Lagos.			
1.D	ADMINISTRATIVE AND OPERATING COSTS FOR LAMATA,	LAMATA has been able to live within its means.			
1.E	Transport planning units (TPUs)	Laudable project which had been implemented but the operations have suffered some set backs. The subcomponent have been divided into segments for a fair assessment of individual parts.			
I	TPU Study	Completed and was used in setting up the TPU			
Ii	TPU set up and training of officers	Completed but trained staff have not been retained in positions they were trained for due to some defect in engagement of key stakeholder i.e The Local Government Service Commission			
Iii	Operations of TPUs in LGAs	Neither effective nor efficient. Unsustainable funding structure and a bit of a disconnect from the LGA/LCDA- little integration with LGA/LCDA			
1.F	SUPPORT TO KANO FOR STUDIES AND TRAINING TO DEVELOP PUBLIC TRANSPORT DELIVERY CAPACITY IN KANO.				
I	Alternative Analysis Study of Interventions to address Congestion along Muhammed Murtala Way Kano	Completed			
Ii	Investigating The Impact Of Motorcycle And 3 Wheelers Growth In Africa (A Case Study Of Kano)	Completed			

Iii	Pre-Feasibility and Conceptual Design Of Transport Hub/Terminals Bus Stops, Pedestrian Facilities, Traffic Management Measures, Depots And Parking Facilities In Kano.	Completed			
2.A	BRT Infrastructure construction and supervision including interchange and traffic management and safety for corridor along Oshodi-Obalende	This could not be achieved because the FGN owns the right of way and the LASG and FGN are still in discussion about grant of right of way			
2.B	BRT INFRASTRUCTURE CONSTRUCTION AND SUPERVISION INCLUDING INTERCHANGE AND TM AND SAFETY MILE 12-IKORODU EXTENSION				
I	Road Construction	Completed satisfactorily			
Ii	Road Infrastructure and Furniture	Completed in compliance with bid			
Iii	Time Savings Mile 12-Ikorodu	Excellent time savings for all commuters and especially BRT who have saved at least 30 minutes on the journey after project.			
Iv	Time savings. Ikorodu -TBS	Excellent time savings of about 50 minutes along the entire corridor from 120 pre and 70 post project			
V	Income savings Mile 12-Ikorodu	Income savings was negative in view of the increase in fares by the Franchisee but BRT is nevertheless cheaper than all other competing transport.			
Vi	Income savings Mile Ikorodu-TBS/CMS	Negative income savings for same reasons as above.			
vii	Preference for BRT	BRT is clearly the preferred choice for commuters			
viii	BRT non-users with positive perception of BRT	BRT non users have a positive perception of BRT but the fact that many people still use alternative transport suggest more can be done.			
2.C	Mass Transit Alternative Analyses Study	Completed and results used in planning			
2.D	DEVELOPMENT OF COMPLIMENTARY BUS SYSTEMS				
I	Bus Route Network Study	Completed and results used in planning.			
Ii	Ikeja Bus Terminal	Project was not originally in the LUTP and as such is still ongoing at project closure thereby not allowing for robust economic analysis.			
Iii	BRT Consultations and Media Strategy	Stakeholder, BRT Radio, sensitization Wetland CDA, Mile 12 CDA –interface with RAP			
2.E	UPGRADE AND RATIONALISE SYSTEM OPERATIONS-INTELLIGENT TRANSPORT SYSTEM	Study completed, ITS system is presently being installed but project delivery is late and did not afford the ICR robust analysis of the efficiency of the ITS			
3	IMPROVEMENT OF LAGOS STATE METROPOLITAN ROAD NETWORK				
I	Routine Maintenance	There was no activity on this under the LUTP and no clear cut explanation on the reason for this inactivity. This was to have been funded by the LASG			

Ii	Periodic Maintenance and pavement management	There was no activity on this under the LUTP and no clear cut explanation on the reason for this inactivity. This was to have been funded by the LASG			
Iii	Rehabilitation Wempco Road, Ogba, Lagos	Completed and ICR economic analysis shows project viability. Travel times savings occurred and commuters have better travel experiences and business activities picked up.			
Iv	Rehabilitation- Akin Adesola Road, VI, Lagos	Traffic congestion reduced, travel times savings apparent and flooding is substantially reduced and commuters have a better travel experiences.			
4	PROJECT MANAGEMENT AND MONITORING GENERALLY	LAMATA M&E is competent and have a culture of integrity. Monitoring is systematic and outputs are recorded and stored in an easily retrievable manner. Copious body of secondary data readily available and knowledgeable M & E staff. There are however snags in the Safeguards Unit concerning the RAPs which are assessed separately below:			
i	Safeguards –stakeholder sensitization and engagement	Stakeholder engagement and sensitization executed with credibility and PAPs are satisfied.			
ii	RAP for Ayangburen Market Traders	Not quite satisfactory but can still be salvaged if rapid intervention engagement is undertaken before project closure at month end.			
iii	RAP for Omolere Plantain Market Traders	Not quite satisfactory but can still be salvaged if rapid intervention engagement is undertaken before project closure at month end.			
Iii	Consideration for Gender and Vulnerable Groups on BRT journeys	Satisfactory. ICR Survey confirms that this group of beneficiaries are satisfied. Footbridges have ramps that wheelchairs easily use, BRT buses give special preference to them in “no queue” policy and special seats assigned.			
Iv	Consideration of children on BRT journeys	A lot more needs to be done to welcome children on BRT buses. The fare is no different to that of adults.			
V	Safety on corridors	Preventable accidents still abound because of a failure of law enforcement. Okadas traverse corridors exclusively dedicated to BRT and they are speeding on such corridors because they know they ought not to be there. Some bus stops are not safe in the early mornings and late evenings because of failed street lightings and absence of policing.			
Vi	Data gathering to implement CHG Emissions Reduction	Not yet optimum data gathering on CHG but the process has been engaged.			

6.7 MAJOR LESSONS LEARNED

- Resettlement Action Planning (RAP) should be holistic and sustainable. Security of tenure of land makes for sustainability otherwise the objective of the resettlement action will be defeated and another resettlement will have to occur in the future. In the case of the Ayangbunren Market traders the PAPs were displaced from an uncertain future to an equally uncertain future. In the long run it is doubtful whether money used to secure the resettlement does bring value.

- RAP should be totally transparent and non of the aspects or steps involved should be opaque to the PAPs. In this instance, there was a shroud covering the agreement between the original owner and LAMATA and their relationship as it would affect the PAPs such that there was insecurity of tenure and ownership of any real interests and even if ownership of stalls resided in the PAPs, the fact that the original owner could threaten their use of the stalls meant they still had insecurity of tenure. If the allottees were to be in a landlord and tenant relationship with the land owner then they should have been part and parcel of the negotiation of the tenancy. Also it is important that terms are explained properly to the PAPs so as to ensure acceptance. From the Agreement on allocation of stalls, there was no *illiterate jurat* (a legal clause that shows that the person signing who is illiterate understands what he is signing, same having been translated to his/her local dialect) to show that the terms the allottee PAP was signing was actually understood. In the terms, LAMATA has asked to be exonerated from any liability in case of dispute between Landlord and Tenant in an agreement that the PAPs were not party too. Invariably the PAPs are left unprotected from the machinations of a Landlord they did not even know they had. To them LAMATA was their Landlord. Internal organizational structure of Market Associations are important and they function efficiently thus all resettlement plans should strive to maintain the integrity of the organizational structure and not seek in any way to erode it or weaken it.
- Resettlement ought not to end with just allocation of stalls and relocation but there should be an oversight role after relocation for purposes of sorting out all nutty or teething problems that may occur so as to facilitate seamless and sustainable resettlement.
- There is need for some Government supervisory role over resettled persons and the area so as to perform some function of supervision of the activities of the PAPs and give them assurance of security and tenure. In this wise, the LGA should have some role and such role should be defined so that it does not become burdensome supervision to the PAPs.
- LAMATA should seek to achieve long leaseholds of land that PAPs would be resettled on to. Short leasehold tenure is not ideal and if the land cannot be acquired by Government under the Land Use Act and compensation paid to the owner so that the land may be Government (LGA) owned (security of tenure guaranteed), then the leasehold should be at least 10 years with a proviso allowing the Market Associations to negotiate a further lease on any other conditions they may agree with the Lessors.
- The matter could still be resolved if the Safeguards Unit convenes a mediation meeting between the two Associations and the Landlord. The Ayangbunren traders are still willing to go back to the stall and continue with daytime trading but feel it is very unsafe to conduct evening trading in the area. They are willing to resolve matter with the land owner but need LAMATA to mediate in the matter.
- RAP in the case of the Omolere Plantain Association also brought similar lessons to the Ayangburen Market Associations. LAMATA had good intentions, put in a lot of effort in sensitizing the PAPs, gained the trust of the PAPs reflective of very proficient engagement but implementation of the RAP did not yield results that the beneficiaries could celebrate. It is important that there is transparency in all the processes of the RAP. In this case, it does appear that the main beneficiaries of the RAP are the owners of the property and not the intended beneficiary. The important rule in resettlement is that the PAPs should not be left worse off than they were prior to the resettlement. This is exactly how the PAPs feel at this point.
- Lessons learned in respect of the TPUs are that prior to setting up a special unit in any institution it is advisable to examine if there exist any departments that seems to have a semblance of similarity in functions to the new special unit being proposed. If such exist, then there must be either an abrogation or scrap of such existing unit or a merger of the two units. Where parallel units exist the survival of one is dicey.

- Although it is not certain that the Local Government Service Commission was not contacted or consulted prior to the creation of the TPUs, it is however important to stress that Stakeholder analysis at the beginning of any initiative must be thorough to include even those whose only function may be adjudged even remote. In this wise, the Local Government Service Commission was perhaps left out and the action of the latter has impacted adversely on a carefully thought out and laudable project. The Commission is responsible for all the LGA/ LCDA workers throughout the State and the transfer of the staff from one LGA/LCDA to another is a normal function. Consultation with this commission will stem the frequent transfer of trained officers to LGA/LCDA where TPU is none existent.
- For projects to actually endure in the LGA/LCDA, the Chairman of all the 57 LGA/LCDAs in the State should be sensitized and engaged in a determined manner until they are totally bought into the project. Even if the TPUs would only first have a 10% penetration at the onset, the buy-in of all the 57 Chairmen will give institutional acceptance of project and the first set would feel special to have been selected while the remainder will eagerly wait for their turn. LGA/LCDAs have their special functions especially as regards feeder roads and there should be no reason for them to sabotage the efforts of LAMATA if they understand the overall objective of the project. LAMATA should also keep in mind the politicking that underscores LGA/LCDAs and help in securing legitimacy for revenue base that by law accrues to the LGA/LCDAs. Resistance comes if persons fear erosion of their revenue base. Prompt cooperation and support for the TPUs from Local Government Executives should be enjoyed by members of the TPU and should not be seen as competitors.
- A sustainable plan requires a dedicated funding line and the line should be from the LGA/LCDA. LAMATA should institutionalize the The TPU's funding line within the LGA/LCDA.
- The issue of lack of concessionary transport fare for children on the BRT Corridor needs to be evaluated and a system of subsidy should be considered by LAMATA. Children are grossly under-represented in bus travel as observed during field survey and it is because the fares remain largely unaffordable to the parents. Perhaps the operator of the Franchise could be persuaded to provide free bus travel for children at peak school resumption and closing times as Corporate Social Responsibility or perhaps the LASG/LAMATA would consider subsidising the travel for children. A system could also be looked into that may bring some other multinationals to subsidise such travel similar to the free transport that Cadbury PLC was providing at one time to children.

6.8 RECOMMENDATIONS AND FOLLOW UP ACTIONS

(i) LASG will require in the near future further assistance from the World Bank for a third phase of the Lagos Urban Transportation Project. The request is based on the benefits and contributions of the LUTP 2 to the State's developmental agenda. LAMATA'S vision for the follow-on assistance would involve enhancing mobility and affordability of bus transport services and increasing the physical resilience of the transport network of Lagos State to extreme economic downturn and weather events. The proposed request could involve a number of components, including expansion of the BRT to additional corridor(s), improving feeder bus route connectivity, implementing portions of Lagos State's drainage master plan, facilitating bus and person movements along identified corridors through enhanced traffic management and ITS measures, and improving capacity of different agencies in Lagos State to manage the transport system effectively.

(ii) Consolidate the gains of the establishment of the TPUs in the 6 LGA/LCDAs by addressing law or regulations to solve the issues of legitimacy and sustainability such as removing parallel functionaries and institutionalizing only the TPU.

(iii) Empower the TPU to be sustainable by providing a secure and regular funding line from the LGA/LCDA. In this wise a budget should be made in the LGA/LCDA annually for the TPU and the TPU should be made a department at the LGCs with full rights and privileges of a full government functionary.

(iv) Staffing of TPUs must be given special status and the Local Government Commission should be instructed by the LASG through the appropriate legal channels that specialised staff must be retained within or transferred only to the LGA/LCDAs that can use their expertise.

(v) Foster cooperation and support for TPU from the local council executives by conducting Inter-LGA/LCDA stakeholder Workshops for dissemination of TPU activities and feedback so that best practices can be shared.

6.9 CONCLUSIONS

The overall conclusion of the Consultants is that the LUTP2 has achieved the Project Development Objectives and the KPIs. LAMATA's capacity in project planning and implementation has again been affirmed. With two major projects as the LUTP1 and 2, LAMATA has definitely come of age in Nigeria as a credible institution. It is expected that LAMATA will showcase its capacity by a more visible and perhaps "loud" presence in both hard and soft media. It is expected that more funding be assigned to the External Relations Unit to achieve this. The website could do with greater robustness such that more data would be accessible and LAMATA can graduate to being an institution of Transport planning and perhaps collaborate with some universities. The capacity within LAMATA can be of immense benefit to Nigeria.

6.10 ACKNOWLEDGMENT

Sages Consult expresses appreciation to the Management of LAMATA, in particular the Managing Director and all the heads of Directorates and Units for kind cooperation throughout the conduct of the ICR Consultancy. Our company is proud to be associated with LAMATA and what the Authority has achieved in the Lagos State Transport Sector.