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# Lagos Bus Rapid Transit

Africa's first BRT scheme

*Dayo Mobereola*







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## *The Lagos BRT-Lite System*

Dayo Mobereola

September 2009



Sub-Saharan Africa Transport Policy Program

The SSATP is an international partnership to facilitate policy development and related capacity building in the transport sector in Sub-Saharan Africa.

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## Foreword

After years of struggling with a lack of reliable public transportation system, Nigerians living in the city of Lagos finally got to experience their first organized and efficient bus transport system. Launched in March 2008, the new Bus Rapid Transit (BRT) system provides Lagos commuters with a clean, affordable and reliable means of getting around in the city. The BRT is a bus-based mass transit system that delivers fast, comfortable and cost-effective service.

In a city such as Lagos, this is no small feat. As the commercial capital of Nigeria and with a population of 17 million (the sixth largest city in the world), its highways are often extremely congested, partly because of the city's layout. There is currently no organized mass transit system in the city and public transport services are of very poor quality and delivered mostly by individual bus operators.

This BRT system is the first of its kind in sub-Saharan Africa, and is the only example of a comprehensive and integrated approach to improving public transport. The project draws from best practice examples of Bogota (Columbia) and Curitiba (Brazil) but adapts the concept to African context, as BRT 'Lite' (i.e. a high-quality bus system that is affordable in the local context while retaining as many of the most desirable BRT characteristics as possible).

Since the start of its implementation, the new system has brought about many positive changes. The evaluation suggests that thus far, over 200,000 commuters use this bus system daily, passengers enjoy a reduction of 30 percent in average fares (from 140 Naira in the past to 100 Naira currently) and a reduction of 40 percent in journey time, cut average waiting time by 35 percent, and experience a welcomed absence of exposure to theft on public transport. This has been made possible by the introduction of discipline in operations (route franchising), the increase in average speed (from less than 15 km/hour to 25 km/hour),

and the creation of an enabling environment (investing in infrastructure needs).

This project has demonstrated and confirmed the strategic role of public transportation in a megacity and the critical role of commitment and leadership at the highest levels of government. The Lagos BRT-lite system provides a good example for replication in other cities. If Lagosians can do it in Lagos, it can be done anywhere else, with the right motivation, commitment, dedication, and leadership.

A handwritten signature in black ink, appearing to read 'Ajay Kumar'.

Ajay Kumar

SSATP Urban Transport Thematic Leader

## **Acknowledgments**

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## Acronyms and Abbreviations

AU/NEPAD	Africa Union/New Partnership for Africa's Development
BRT	bus rapid transit
EC	European Commission
ITP	Integrated Transport Planning Ltd
KAI	"Kick against Indiscipline"
LAMATA	Lagos Metropolitan Area Transport Authority
LASTMA	Lagos State Traffic Management Authority
LSG	Lagos State Government
LUTP	Lagos Urban Transport Project
NBFI	Nonbank financial institution
NURTW	National Union of Road Transport Workers
RTEAN	Road Transport Employers Association of Nigeria
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan African Transport Policy Program
UNECA	United Nations Economic Commission for Africa





## Overview

Africa's first bus rapid transit (BRT) scheme began operations on March 17, 2008, in Lagos, Nigeria. Called "BRT-Lite", it is a form of the BRT system, but it is not of the highest specification like the TransMilenio in Bogota or the Brisbane South East Busway, both of which cost about \$6 million per kilometer. This new form of the BRT scheme is aimed at delivering a transport system that will meet the needs of local users, while improving citizens' quality of life, economic efficiency, and safety within a clearly defined budget.

Two aspects of the system—the relatively short time, 15 months, required to go from conception to operation and its delivery at a cost of \$1.7 million per kilometer—make its development unique. This experience is relevant to the many cities throughout the world seeking to develop a BRT system. The BRT-Lite system in Lagos is now carrying almost 200,000 passengers a day, but its capacity will not allow it to satisfy all the demand forecast. Within its first 100 days, the system carried 9.7 million passengers, and within its first six months of operation 29 million passengers.

The BRT-Lite system operates along a 22-kilometer route of which 65 percent is physically segregated from the regular roadway and 20 percent is separated by road markings. However, its success stems not solely from its infrastructure but from a holistic approach that has included reorganizing the bus industry, financing new buses, creating a new institutional structure and regulatory framework to support the system, and training the personnel needed to drive, maintain, enforce, and manage it. While meeting these technical and organizational challenges, BRT officials were also engaging the public and promoting the new system. In return, the public quickly adopted the new system, and the

praise was plentiful. All this was achieved within an extremely challenging environment and during an election for the new state governor.

According to the evaluation of the BRT-Lite system completed in the fall of 2008, its users were saving travel time, had fewer transfers, were traveling cheaper, and felt safer. Businesses along the system's corridor were positive; the new system improved accessibility—staff found it easier to get to work and to travel on company business. Negative comments primarily revolved around the need for more routes and buses. Problems, then, do exist and improvements will be made, but the overriding factor is that the BRT-Lite service is having a beneficial effect on the quality of life of a large part of the traveling population of Lagos.

More broadly, the evaluation declared the scheme an unprecedented success. The critical success factors were defined as a significant and consistent political commitment, the presence and abilities of a strategic public transport authority in LAMATA (Lagos Metropolitan Area Transport Authority), a scheme definition that concentrates on essential user needs and deliverability within a budget and program, the work undertaken to engage key stakeholders and ensure that they benefit, and a community engagement program that has worked to assure Lagosians that the BRT-Lite system is a community project created, owned, and used by them.

## Transport in Lagos

The BRT-Lite system was born into challenging circumstances. The Lagos metropolitan area has a population estimated at between 15 and 18 million, and projected (conservatively) to grow to more than 25 million by 2025. If such growth materializes, the metropolitan area would become the third largest agglomeration in the world, after Tokyo and Mumbai. Already it has expanded well beyond the boundary of Lagos State into Ogun State, and this reality was formally recognized in 2006 when Olusegun Obasanjo, the former president of Nigeria, accompanied by the governors of the two states, launched the Lagos Mega City Project.

At that time, Lagos was the only megacity (defined by UN Habitat as a city with a population of over 10 million) without any organized public transport system (although those in Karachi and Dhaka had largely collapsed by the end of the last century). Lagosians relied for their mobility on a large fleet of 75,000 minibuses (*danfo*), together with smaller numbers of midi-buses (*molue*) and shared taxis (*kabu-kabu*).



For local journeys, they employed motor-cycle taxis (*okada*). *Danfo* and *molue* are low quality modes of transport with variable fares, and journeys are slow and uncomfortable. They favor short distances to maximize profit rather than to serve demand, and their drivers have a reputation of being aggressive.

In Lagos, the inadequacy of the road network (insufficient road length relative to the population, a limited number of multilane arterial roads, and generally poor road maintenance) and the relatively high level of car ownership for a developing country (encouraged by subsidized petroleum prices and unrestricted imports of second-hand vehicles) exacerbated the traffic congestion inherent in this form of public transport. As a result, the typical journey for commuters from the main residential areas to the north and west of the city to Lagos Island could take more two hours, especially when vehicle breakdowns, accidents, and flooding blocked the roads.

## **Launching the Lagos Urban Transport Project**

When new administrations were elected at the federal and state levels in 1999, transport was identified as one of the most pressing issues in Lagos State. In response, the governor, Bola Tinubu, appointed a special adviser on transportation and sought development assistance from the World Bank Group.

Building on concepts from earlier studies, the Lagos Urban Transport Project (LUTP) began by building the capacity to manage the transport system and identifying the priority actions, investments, and enabling measures needed for its improvement. The project adopted a multi-modal transport approach, recognizing the potential for developing rail and inland waterway mass transit for integration with the core road passenger transport network.

From the outset, enhanced bus services were a core component of LUTP, and it so included the development of a bus way—though primarily as a measure to complement the mass transit railway proposal. Direct financing of new buses by the World Bank was also considered,

but the problems with the earlier Federal Transit Program—finance defaults and short vehicle lives—suggested caution in this area.

LAMATA also recognized it would have to exercise regulatory control over the private sector bus operators and introduce some order in this market, where the response to demand in terms of fare level and routing had been taken to extremes. It began by exercising the existing powers for the registration of route licenses, effectively on demand, and opted to introduce “controlled competition” for market entry once the appropriate legislation was in place.

Phase 1 of LUTP focused on fast-return investments, such as road maintenance or rehabilitation and junction improvements, but it also included the preparation of technical, environmental, and social measures for possible future mass transit development that might be supported within a private-public financing framework.

### **Creating the Lagos Metropolitan Area Transport Authority (LAMATA)**

An analysis of the transport situation in Lagos revealed the lack of any mechanism to coordinate the plans and actions of the various agencies at the federal, state, and local government levels for managing, maintaining, and developing the transport network in a holistic and integrated manner. Furthermore, most of these agencies lacked a secure financial basis for their operations; their budgets were vulnerable to fiscal pressures and higher political priorities.

The creation of an appropriate coordinating authority was therefore placed at the heart of LUTP, together with measures to ensure its sustainability through a lien on transport user charges. The LAMATA Law of 2002 established and empowered the authority. It was given jurisdic-

tion over the conurbation in Lagos State and a declared network of primary and secondary roads that carried the large bulk of road traffic, as well as the power to plan and coordinate public transport and make recommendations on route planning. LAMATA was staffed with highly motivated professionals, many former residents of Nigeria, who had experience worldwide in transport and management.

## **Tackling Public Transport**

The implications of introducing a controlled-competition regime for the core road passenger transport in Lagos were explored in a detailed study undertaken in late 2003. This study discovered that, among other things, the structure of the road transport industry was not readily amenable to regulatory control and held the power to block any attempts at reform.

It also found that the private operators were not in a position to make the necessary investments in larger buses, whose fewer numbers (in comparison with minibuses) would reduce congestion and whose greater capacity would raise productivity, thereby offering the potential of lower fares or enabling scheduled services (as opposed to the traditional fill-and-run) at the same fare.

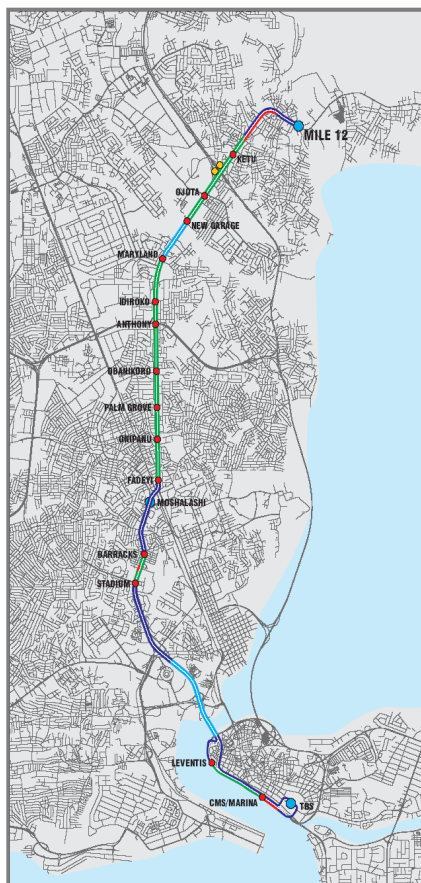
After an extended period of consultation with and education of the leadership of the operator unions and associations, agreement was reached to test both the regulatory reform and the fleet investment in a pilot scheme using the private-public financing framework envisaged in the establishment of LUTP. LAMATA would provide the enabling framework, including traffic systems management measures in the corridor and passenger terminals and a depot and workshops complex for the new fleet; the operators would accept the regulatory enforcement and commit to procuring the appropriate buses.

## **LAMATA Launches the BRT System**

Integrated Transport Planning Ltd. (ITP) was asked in August 2006 to undertake a “Feasibility Study for an Initial Corridor for the Lagos Bus Rapid Transit (BRT) System.” The study, which encompassed infrastructure, operations, and regulatory and institutional reform, was launched with the goal of developing a BRT system with the following characteristics:

- Efficient service (low cost, high frequency, high speed, high occupation, high safety, low emissions)
- Adequate institutional and regulatory framework
- Significant socioeconomic benefits, especially for the low-income population
- Maximum private participation
- Minimum public expenditures and liability
- Adequate mitigation of environmental and social impacts of the BRT system.

This challenge had to be met with an open mind informed by the experience worldwide with the BRT system and guided by an understanding of the local transport context (opportunities and constraints), local user needs, and the key issues surrounding deliverability. The BRT concept was assumed to be a flexible one, implying a systems-based approach to public transport, but defined by local user needs, context, and deliverability.



The 22-km BRT-Lite route from Mile 12 to Lagos Island

BRT "users" were defined as the traveling public, together with the system providers—that is, the stakeholders who were key to delivery and those who were guardians of the wider policy objectives. Each party with either an interest in the BRT system and its delivery or an investment (financial or emotional) in its achievement had to be represented within the effort to define the system. This approach demanded that the consultants work closely with LAMATA, drawing on its efforts to harness and guide the wider stakeholder groups, developing their role in and understanding of BRT implementation, bringing in international expertise in approaches that might meet local aspirations, and seeking to understand the needs of local travelers.

## The Needs of the Traveler

The needs of the traveler were determined using the following methods:

- *Ethnographic observation.* This method consisted of discreet observation of travelers' access to transport, their contacts and relationships with the various actors involved in transport, and their demeanors and actions.



- *Qualitative/qualitative surveys.* Surveys were conducted to establish formal data such as fare elasticity and value of time, but also to gather details on the relative importance of walk, wait, and travel times, transport choice issues, and the most important obstacles to the ideal use of transport.
- *Focus groups.* A series of focus groups were held to explore in detail the issues related to travel in Lagos by different demographic groups, as well as to test the features that may or may not be applied within a BRT system.

The following concerns were identified as very important to travelers:

- *Safety.* The incidence of crime on vehicles and while waiting for vehicles to arrive was high. The crimes ranged from theft to physical abuse. The disorder and chaos surrounding public transport was viewed as an opportunity for criminals, and, where crime was not present, the almost constant intimidation and general chaos led to undue stress on travelers.
- *Fare levels.* Public transport fare levels often varied according to demand, weather conditions, and the whim of the conductor. A significant proportion of the traveling public is highly fare sensitive, with some making daily decisions about whether to travel based on available funds.
- *Long and unreliable journey times.* The practice of vehicles not leaving until full, of short services that required transferring to another vehicle, and the lack of transport penetration into residential areas, together with the widespread and variable congestion ranging from high to intolerable, meant that public transport journeys were both long and uncertain.
- *Comfort.* The state of many buses was very bad. Lack of upholstery on seats and the rusted metal edges that ripped clothing or caused injury were common. Therefore, travelers placed value on a basic level of comfort that would avoid these problems.

In satisfying traveler user needs the BRT system had to, above all else, have the following attributes:

- *Safe*, both on the vehicle and accessing it
- *Affordable*, with constant and easily understandable fares
- *Reliable*, offering improved and reliable journey times.

## **Defining the Lagos BRT-Lite System**

The pilot BRT corridor was chosen by means of the feasibility study, and today the BRT system runs along Ikorodu Road, Western Avenue, and Eko Bridge, a key 22-kilometer radial highway that connects Mile 12 and Lagos Island (the traditional central business district). Before implementation of the BRT system, the highway enjoyed a wide carriageway that ran two or three lanes in each direction; service roads run alongside about 60 percent of its length. The BRT corridor crosses over one of the three bridges that connect the mainland with Lagos Island, and so the route effectively connects extended suburbs, satellite centers, to the traditional central business district of Lagos.

The concept of a BRT system was the subject of an open discussion with the BRT Steering Committee, chaired by the commissioner for transport, Muiz Banire, and composed of key stakeholders. The group viewed an artist's impressions of the median and bilateral operation of cars and buses on the chosen corridor, both equipped with physical segregation of BRT buses from the rest of the vehicular traffic. Participants quickly recognized that the BRT system was not necessarily a long-term grand aspiration, but was instead something readily deliverable. The visualization showed immediately what benefit the system would bring to bus run times and consequently to those traveling along the corridor. From that point on, and in parallel with the development

of a “BRT-Classic” scheme, a project was launched to define a “BRT-Lite” system.



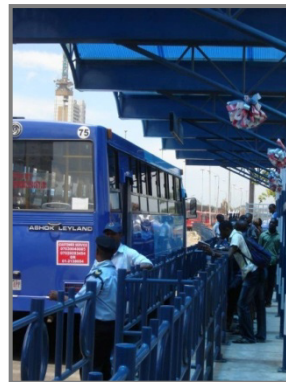
An artist's rendering of what the BRT-Lite system might look like.

Preliminary engineering designs for the corridor recommended virtually continuous bilateral segregation, with breaks where merges and diverges were needed to and from service roads. Other breaks were provisionally recommended for viaducts and overpasses where concerns about structural integrity, together with width constraints, made physical segregation using concrete curbs impossible. The final result is a BRT system in which about 65 percent is physically segregated from other traffic, 20 percent is separated by bus lanes (marked in paint), and 15 percent mixes with other traffic. Although total segregation may have been preferable, the overall need for delivery and improved run times by concentrating infrastructure on where it had the best impact meant adopting pragmatic solutions. Periodic breaks in the segregation to allow for merge or diverge across the BRT roadway ensured that any broken-down vehicles could be easily towed and that approaching BRT vehicles would be able to drive around any blockage. This level of flexibility is important in a system in which demand could exceed supply.

In the system as implemented, lanes are typically 3.3 meters wide and are separated from other traffic by concrete curbs that are 400 millimeters high. Lanes are the minimum width that can support unconstrained, safe operations, and curb height is the minimum that will deter lateral intrusion. Gaps of about 0.2 meters were left in the curbs to allow storm water to drain, thereby avoiding the need to reposition road drainage.

Standard detailed drawings and cross-sections were produced of areas of relative complexity (such as merge and diverge locations). Detailed design and construction contracts were signed with contractors, who worked largely from the preliminary engineering design produced by ITP. ITP and the contractors worked together to ensure that the concept was carried through to construction. This approach, managed and guided by LAMATA, reduced the scheme design period by removing a detailed design phase and achieving the continuity needed to make sure that the concept was not lost in the subsequent design.

Along the BRT-Lite corridor, new shelters were built to give order and structure to vehicle boarding. Tickets are purchased upon entering the stop, and passengers then queue before entering the bus. The shelter protects passengers from the sun by means of an opaque glass canopy. A similar design style is used at the terminals, where more space is provided for boarding and alighting.



The BRT-Lite system runs seven days a week, between 0600 and 2200 on weekdays and with reduced hours of operation on the weekends. Vehicles are dispatched from a terminus when available to accommodate the almost constant demand. As such headways (the time interval between two vehicles traveling in the same direction on the same route)

are not part of operational planning but a product of vehicle availability and a desire to meet demand in the context of journey time variability en route. The out turn headway is typically between 30 and 60 seconds.



- ① BRT running lane
- ② Carriageway lining
- ③ Type 2 concrete segregation
- ④ Warning signage
- ⑤ Yellow box area
- ⑥ Merge area
- ⑦ Extension of diverge “nose”
- ⑧ Give way marking

BRT lane: typical merge/diverge arrangement



- ① Pedestrian warning signage
- ② Pedestrian crossing points
- ③ BRT stop structure
- ④ Entry taper and layby
- ⑤ Type 2 concrete segregation
- ⑥ Stop landscaping feature
- ⑦ Running lane
- ⑧ Stop lighting
- ⑨ New lighting

BRT stop: typical arrangement

A new terminus was built at Mile 12 utilizing the underside of the highway flyover. The existing terminus at Tafawa Balewa Square on Lagos Island was modified. A new depot was built alongside the route to park the 100 new vehicles. It now houses and maintains over 200 vehicles.

A driver training program was instigated to retrain bus drivers in use of the infrastructure and customer care. An incentive for drivers to participate was their new title—*pilots*. The concept is popular, with users referring to whether they will or will not “fly” BRT!

## **Institutional and Regulatory Context**

The delivery of the BRT-Lite system involved the cooperation of multiple agencies for several reasons. First, development of the system had to be situated within the context of the state’s master plan for land use and spatial development. To ensure that synergy was maximized between development of the BRT-Lite system and the master plan, representatives of the state master plan sat on the BRT Steering Committee.

Second, transfer of the control of the federal highway over which the BRT-Lite system operates to Lagos State involved the Lagos State Ministries of Transportation and of Works. Even though the BRT-Lite system is a Lagos State Government (LSG) initiative, the cooperation of these bodies could not be taken for granted. One result was that the construction of the BRT-Lite infrastructure was contracted directly by LAMATA and not through the Lagos State Ministry of Works.

Third, oversight of primary traffic management and enforcement in the state lies with the Lagos State Traffic Management Authority (LASTMA), a body that reports to the State Commissioner for Transport. Co-operation between LASTMA and LAMATA improved markedly in recent years, and so LASTMA was prepared to commit to the BRT-Lite scheme the significant resources needed to protect the exclusive use of its infrastructure and to manage traffic conflicts in the box junctions at the various highway merges and demerges.

Finally, the BRT-Lite system needed the support of the state initiative “Kick against Indiscipline” (KAI) to help with management of the public, particularly at the stations and terminals. This management included traders and hawkers on the walkways or sidewalks and orderly queuing at the bus stops and vehicle parks (terminals).

### **LAMATA as regulator and sector sponsor**

The original powers granted to LAMATA in the domain of passenger transport had been limited to the planning and coordination of such transport, not its actual regulation. However, the revised LAMATA Law passed by the House in late 2006 defined LAMATA’s function as, among other things, to “plan, regulate and co-ordinate the supply of adequate and effective public transport in all travel modes and supporting infrastructure within metropolitan Lagos”. The revised law also granted LAMATA specific powers to make regulations (with the approval of the governor) related to its functions. With these powers, LAMATA’s role as the sector regulator was unambiguous.

The law also granted LAMATA the power to “prepare plans for the management and development of transportation in metropolitan Lagos” and, in conjunction with the Ministry of Works, to “construct, reconstruct, maintain and manage transport infrastructure and facilities” necessary for the discharge of its functions. This legislation thus empowered LAMATA to act as the sponsor and promoter of mass transit schemes in Lagos and therefore to develop the BRT-Lite system.

### **NURTW and the transport industry**

The organization of road passenger transport operations in Nigeria falls by law under two separate bodies: the Road Transport Employers Association of Nigeria (RTEAN) and the National Union of Road Transport Workers (NURTW). Over time, RTEAN, which represents mainly owners’ interests, came to dominate the interurban and large-bus sec-

tors. NURTW, which focuses on drivers and workers in the transport sector, dominates the urban and small-bus sectors.

Although NURTW is a national body, it is organized along state lines with its own council and related administrative functions. The operational level of the union is managed by its branches, which divide the network into zones based on the principal terminals (known locally as vehicle or lorry parks). Routes (lines) are controlled by the relevant branch(es). Vehicles pay fees for registration and each terminal departure. They queue for boarding, and only leave the terminal when full (in the direction of predominant travel at peak hours). NURTW exercises little control over operations once vehicles have left the terminal, and most vehicles board and let off passengers on demand along the route.

The large majority of small commercial buses that dominate the transport supply are operated not by their owners but by individual drivers who pay a daily rental fee (“deliver”) to the owner for the use of the vehicle. The driver absorbs all the direct operating expenses, such as hiring a conductor, buying fuel, making minor repairs, and paying system access fees (including extortion by enforcement agencies). The owner retains responsibility for maintenance and major repairs and covers fixed costs such as finance, licensing, and insurance. The relationship is analogous to an operating lease for the use of the vehicle and is standard practice for the sector within the region.

NURTW had recognized the need to upgrade the ailing vehicle fleet and meet the challenges of increasing demand. This recognition was fostered by LAMATA through a process of educating the operators about the options for an organized collective transport system and how such systems are organized and operated. This educative process included tours of South American BRT systems in 2004 and 2006.

The need to actively involve NURTW and RTEAN in the development of the BRT-Lite system was viewed as essential. Previous attempts at formalizing public transport on Ikoyi/Victoria Island had failed because



of the inability to effectively engage the unions. In this instance, however, the bus franchising activities under way elsewhere in Lagos in parallel with development of the BRT-Lite system helped the parties to understand their respective roles in and the benefits of public-private co-operation.

### **Road traffic regulations**

Both federal and state legislation set out standards for the use and construction of motor vehicles, but these standards are not consistent.

The federal regulations are broadly appropriate for a standard single-deck bus or coach; height and length limits effectively preclude double-deck or articulated buses. The specific standards for omnibuses related to passenger access and comfort levels (height of steps, size and spacing of seats, etc.) are well below international norms, but they place no barrier to the implementation of a higher quality of service where desired. By contrast, the state regulations, based on a Road Traffic Law dating back to 1949, are an obsolete set of standards.

### **Regulation of passenger transport services**

The current LAMATA Law not only provides for the reestablishment of the Lagos Metropolitan Area Transport Authority with the appropriate functions and powers, as just reported, but also repeals the Public Transportation (Commuter Buses) Registration and Restriction Law of 2004. That poorly drafted and wholly unenforceable law had effectively rendered all operators other than Lagbus Asset Management Ltd. (Lagbus), a Lagos State Government initiative, illegal. Not only had the coexistence of that law and the Bus Franchise Regulation under s.21 of the first LAMATA Law led to confusion, but it also had been interpreted as conferring regulatory powers on Lagbus, which would be in conflict with the establishment of LAMATA itself. Repeal of the law, therefore, had been an essential component of the effort to secure the

exclusivity of operations required for the viability of the BRT-Lite scheme.

### **The BRT-Lite regulation**

This regulation was published to coincide with the launch of the BRT-Lite system, but it had been the subject of a public education campaign in the period immediately beforehand. The regulation applied to all right of way within the BRT-Lite corridor, and so included not only the system's running lanes but also the parallel general traffic and service lanes as well as the walkways or sidewalks.

The primary provision of the regulation prohibited the operation of vehicles other than those franchised for the BRT-Lite scheme (and certain emergency services) in the designated infrastructure. However, supporting provisions were designed to facilitate the free movement of traffic in the reduced-capacity roadway alongside the BRT-Lite running lanes, principally by restricting other commercial buses to the service lanes and totally prohibiting heavy commercial traffic during the peak hours.

Although this regulation was made under the powers granted to LAMATA when it was reestablished, it was also formally approved by the governor in order to preclude any challenge from other vested interests. It thus acted as the final regulatory security needed for the BRT-Lite scheme.

### **Financing the Operating Fleet**

Two contrasting approaches were taken to financing the large buses needed for the BRT-Lite system. In one approach, 100 new buses were procured by the private sector without any direct public support. In the

second, 120 buses were procured by a state-owned company and then leased to the private sector operator (an additional 40 buses were operated directly by the state-owned company).

The projects officer of the Lagos State Council of NURTW was charged in 2005 with identifying buses that would be suitable for operation under local road and climatic conditions and yet still affordable to the owner and the end user. This process led to the selection of a conventional truck-derivative passenger chassis from Ashok Leyland in India, with bodywork from the same country despite the shipping costs.

NURTW was able to prepare a credible business plan for its operation on intercity routes to the states adjoining Lagos, and thereby attract the interest of both the vehicle supplier and the financial sector, which would have to finance the new vehicles. However, reallocation of the buses to the unproven BRT-Lite scheme for operations within the city proved more challenging, though some banks and nonbank financial institutions (NBFIs) were still prepared to engage in the development process, and risk management measures were devised to allay their concerns. Principal among these measures was the security of repayment to the financier, which was addressed in two ways.

First, the scheme design gave the bank the initial lien on revenues collected from services; only the balance (after the deduction of financing costs) was passed on to the operator. The bank also was given the right to act as ticket distributor and security monitor.

Second, the scheme design required the participating operators to accept collective liability for all the obligations into which they enter. Any individual default, whether by embezzlement of revenues or through vehicle unavailability (perhaps as a result of an accident or mechanical failure), would be met by an additional charge on all the remaining members. When the default was fraudulent, the individual would also lose his deposit/collateral (although this provision was deliberately set

at a level that would not entail loss of all a deposit/collateral so that it would not be a deterrent to participation in the scheme).

The collective liability was intended to enable participants to self-insure against their own damage and routine third-party risks (retaining catastrophe cover), this proved unacceptable in the pilot implementation.

From the operators' perspective, the two main risks to their participation in the scheme were that the new buses would not carry enough passengers to cover the high fixed costs of vehicle finance, and that the buses would not provide the reliability required from adequate maintenance over the finance tenor over time. Clearly, the first of these risks would be addressed through the productivity gains arising from the segregated roadways devoted to the BRT-Lite system, but the second required a commitment from the vehicle supplier to make available locally spare parts and technical support and training from a small team of expatriate service engineers.

Despite all of these steps and measures, no financial institution chose to participate in the scheme. The vehicle supplier eventually resolved this matter by offering to accept deferred payment over two years, provided that a local bank underwrite the counterparty risk. Ecobank Nigeria agreed to this arrangement, but it, in turn, required that senior officers of NURTW lodge collateral personal guarantees in order to mitigate that risk exposure. Fortunately, the levels set for these guarantees were proportionate to the financial capacities of those who had to provide them, covering less than 10 percent of the total transaction value, and so could be put in place.

Once all the financial arrangements were finalized, the vehicle order was confirmed for shipment in the first half of 2007. Delivery was then made in two batches, arriving in Lagos in June and September of that year.

While LAMATA was leading the development of an integrated transport sector, the Lagos State Government was sponsoring a parallel initiative for Lagos Metropolitan Priority Bus Services that was also intended to address the public transport deficit. Lagbus Asset Management Ltd. was established as a wholly state-owned enterprise for the purpose of procuring buses for lease to private operators. It was envisioned that this company would then earn revenue for the state in the near term and develop a track record for flotation once its developmental role had been fulfilled. Meanwhile, Lagbus's choice of bus led to high lease charges, and consequently it was forced into the role of operator, running a radial service along a route that had priority through painted bus lanes. But performance was disappointing, and further rollout over the intended priority network was delayed at the same time that the idle fleet at Lagbus was growing because of the delivery of new vehicles. This situation presented Lagbus with an opportunity to augment the NURTW service on BRT-Lite, and it was agreed that Lagbus would provide express services from the outer terminal at Mile 12 and the intermediate terminal at Moshalashi under its own branding. Twenty-five buses are deployed in this service, with a further 15 held in reserve.

## **Supply Managing Demand**

Initially, only the 100 standard high-floor buses newly acquired by NURTW were available. Demand forecasts estimated that over 300 buses, operating at 20-second headways, would be needed to fully satisfy demand. Clearly, then, not all of the demand could be satisfied, and fully regulating the corridor would overload the system, leading to frustration and the loss of support. At launch, the 100 buses were allocated as stopping services, and an additional 25 buses, owned and operated by Lagbus, were allocated as express services. But because these buses were still too few to satisfy the demand, 120 more buses were leased from Lagbus to serve as additional stopping services.

Meanwhile, an innovative approach that allowed the resolution of several issues was adopted. *Molue* and *danfo* already operating along the corridor were not replaced by the BRT-Lite system outright, but were merely prevented

“Though there are still traffic jams on Ikorodu Road, especially during rush hours, anyone caught in such traffic snarls is in such a situation by his choice because they have the option of keeping their vehicles at home and using the BRT buses, which are clean and safe.” —A commuter

through BRT regulation from operating on the main road. With these vehicles operating on the service roads, travelers then had freedom to choose between public transport modes. In this way, the operators/drivers who did not retrain could continue working, the demand could be met, and the main road traffic flow could be speeded up through the removal of slow vehicles that, historically, had a habit of stopping in the carriageway and disrupting other traffic. The result was market segmentation through an approach that would allow freedom of choice through partial corridor regulation, would ensure that no travelers were left unserved and, in the medium to long term, would improve the quality of service of *molue* and *danfo* as the need to compete with the BRT-Lite system increases. This solution to a supply problem proved to be a significant benefit in securing political and community support.

## Clear and Consistent Political Support

The Lagos Urban Transport Project was initiated during Asiwaju Bola Ahmed Tinubu's tenure as governor of Lagos State. His commitment to an integrated transport system with bus transit as a first point of delivery gave context and support to the BRT feasibility study and was articulated by his commissioner of transport, Muiz Banire, who chaired the BRT Steering Committee. Governor Tinubu initiated the BRT-Lite sys-

tem, committing the funding, resources, and regulatory reform required.

Governor Tinubu's term as state governor ended on May 2007 when Babatunde Raji Fashola was elected governor. Governor Fashola, who was from the same political party as Governor Tinubu, had the same beliefs about and commitment to the integrated transport approach as his predecessor. At a time of political change, the commitment to supporting a movement away from private cars to public transport was a key factor in the success of the BRT-Lite system. In particular, Governor Fashola showed special courage in his commitment to the new scheme in the face of the inevitable criticism during its construction phases. By providing unwavering support, he ensured that political risk, often present in fledgling public-private partnerships, did not present a barrier to private sector participation. His decision to support operations by providing public financing for training, uniforms, and welfare for drivers, together with his commitment of public funds for maintenance, underscored his commitment to public transport—a form of transport used by the many but in the past influenced by the few.

## **Community Engagement**

The BRT-Lite system was developed within a city with little knowledge of LAMATA or what organized public transport might be like, with a history of poor delivery of transport improvements, and with systems that sought to ensure that profit was directed to the already well-to-do. For that reason, the potential for skepticism and suspicion of motives and intentions was rife. The objective of the community engagement strategy launched by LAMATA at project commencement was therefore aimed at developing within the citizens of Lagos the same kind of ownership level for the BRT-Lite system found among delivery-oriented stakeholders.

Within the some 6 million people living in the catchment of the BRT-Lite corridor, three target groups were identified:

- Those who had no vehicles and were captive to public transport and who would be primary beneficiaries of the BRT-Lite system (approximately 65 percent of the total catchment).
- Those who had vehicles but were reluctant users, and who, under the right set of conditions, would use the BRT-Lite system (approximately 25 percent).
- The super rich, who would not be BRT-Lite system users but who would have a strong voice and so would be able to spread influence and might benefit from the decongestion effects of the new system (approximately 10 percent).

It was essential to contact each of these parties in order to develop knowledge of the BRT-Lite system and the benefits to its users. The approach used was to build upon the same principles that gave birth to the BRT-Lite concept—that of developing engagement based on receiving rather than giving information. Thus when each group was consulted, the scheme was explained as a means of solving their own problems rather than those problems identified by others; alien solutions would not be imposed upon users. Through this approach, a sense of local ownership was developed, resulting in the perception of the BRT-Lite system as a user project and not a project owned by technocrats or bureaucrats. The benefits of this approach spread to the often skeptical press, whose reports both during and after construction, while sometimes pointing out problems, were not overly negative and were quick to emphasize the positives.

The public relations strategy during the development and construction stages consisted of advertising within the corridor in newspapers and on radio and television. TV commercials included a 90-second demonstration on how to use the BRT-Lite system: how to pay for a ticket and where and how to wait, board, and alight. Third-party advocacy was



also employed. Those with a voice in the community (local government chairmen, local chiefs, and community leaders) were welcomed to discussions on the BRT-Lite system, how it would operate, and how people might benefit. At the road shows held, handbills were distributed in a range of languages that explained the new transport system.

Community meetings were endorsed by local community leaders and were attended by senior LAMATA officers. The intention was to ensure that LAMATA was not a faceless organization, to allow access to real decision makers, and to show accountability. The effect was to raise LAMATA's profile in general, but also portray it as an organization that would listen and deliver.

In parallel, meetings continued to be held with NURTW and its members at the local level, as well as with taxi drivers and haulage operators. Through the consultation process, it became clearer that all users had the potential to benefit from the BRT-Lite system and that the key objective was to *return life back to the citizens of Lagos*.

The approach to consultation as a means of gathering information made a genuine and meaningful contribution to scheme development. The project was not just about the BRT-Lite system but also about facilitating movement within the corridor. The project thus encompassed the following:

- Constructing a segregated BRT roadway for the majority of the corridor to ensure better and more reliable run times. The segregated roadway was achieved largely by removing part of the median between the main and service roads. This step offered significant improvements in the journey times and journey time reliability, which is of direct benefit to those who have no cars (the first target group just described) and gives a realistic alternative to the car for those who have cars but are reluctant to use them (the second target group).

- Narrowing of the median to ensure that the main carriageway widths remained largely unaltered. This step ensured support of the third target group, the well-to-do, together with haulers.
- Banning of *molue* and *danfo* from the main carriageway, thereby increasing the capacity of the main carriageway and ensuring that travelers could choose between using the BRT-Lite system or other forms of public transport. This form of self-balancing “partial regulation” ensured that the limited capacity of the BRT-Lite system during its early operation had a release valve, but it also allowed some freedom of choice for captive users of public transport, the first target group.

Key to both stakeholder engagement and wider marketing was the engagement of NURTW. Although NURTW had become convinced that it was appropriate for the city to move to a more regulated form of public

“It is the best thing that has happened in Lagos this year. From Palmgrove to Ojota, I used to spend one hour in the traffic jam, but now it takes me five minutes.”  
—Private car owner

transport, its many members needed reassurance and had to be converted into ambassadors of the new transport mode. Meanwhile, the best drivers of the *molue* were encouraged to retrain to become “pilots” of the BRT vehicles, thereby

conveying to them a sense of status. The status among other operators was even greater; they believed they were part of the transport revolution sweeping across Lagos—a revolution generated by the local communities and ignited by LAMATA. Moreover, more drivers were needed than ever before, and the working conditions had changed; the previously tense and often violent atmosphere in vehicles and at stops was being replaced by an environment that reflected the more ordered and civil population of users. The relationship between drivers and users is synergistic: more respectful drivers lead to a more compliant population, which leads to more respectful drivers. The BRT-Lite system was seen as the catalyst for change.

The official launch of the BRT-Lite system on the March 17, 2008, was preceded by the national anthem and the national pledge. The program of events, which were televised, began at 1000 and was overseen by the executive and deputy state governors. In the launch booklet produced, the system was portrayed as a major step forward in the development of the city of Lagos.



The opening of the BRT-Lite system was followed almost immediately lines of eager customers waiting to buy tickets and board vehicles, thereby reducing the passenger ramp-up period often observed with new public transport schemes. In order to continue to foster scheme support, improve services, and spread the news about the new BRT-Lite system, the following public relations initiatives were launched to support the operations phase:

- When the BRT-Lite system was 100 days old, a BRT parliament was established to assess and debate the performance of the system and any issues arising from it. The parliament consists of senior LAMATA officers, the lending bank, state government representatives, and user representatives, including the physically challenged and commuters. Moderated independently by a senior academic from the University of Lagos, the parliament is attended by some 1,500 people and even more watch the televised proceedings.
- A customer relations management line was established so that anyone with comments or questions can ring or text 24 hours a day, seven days a week. The line is manned by two operators. The nature of the comments is logged and summarized in a customer relations manager's report and complaint tracking.

- In May 2008, a live TV program was launched to examine BRT issues. Shown on Sunday and repeated Tuesday, the program often consists of an interview with someone involved in the BRT-Lite system or someone who has an opinion on it or its operation. The program has a weekly audience of about 5 million.

BRT and LAMATA branding was used prior to implementation of the BRT-Lite system and was intensified after implementation by issuing all BRT-related

“Before the BRT, I sometimes spent more than four hours in the Ikorodu Road traffic jam. I pray to God that they can sustain it.”  
—A commuter

staff and many others BRT-Lite polo shirts and baseball caps. This gesture has ensured that BRT and LAMATA are highly known brands throughout Lagos.

## Performance

A full evaluation of the BRT-Lite system was undertaken seven months after its launch to assess the performance of the scheme both operationally and in the eyes of its users. From this evaluation, a series of key performance indicators were derived to measure the success of the scheme and allow benchmarking against other BRT or other transport systems worldwide. This evaluation was supported by a comprehensive quantitative and qualitative data collection exercise. The following operational characteristics provide an overview of the BRT-Lite service:

- Operating headways range from an average of 30 seconds during the morning peak hours, to about 45 seconds during the off-peak hours, to 40 seconds (1.5 buses per minute) during the evening peak hours.

- The average journey time from Mile 12 to Lagos Island is just under one hour; the minimum and maximum journey times in this direction are 40 minutes and 70 minutes, respectively.
- The average journey times in the northbound direction from Lagos Island could be significantly shorter; the minimum recorded journey time on the express service is 20 minutes. The average journey time is 45 minutes, although this time varies by time of day; the average morning peak journey time is about 40 minutes, rising to 55 minutes during the evening peak hours, when the main traffic movement is away from Lagos Island.
- Round-trip times considerably exceed the journey times because of terminal capacity problems and driver layovers (drivers stay with their buses during breaks), and so operating speeds are well below commercial speeds.
- Queuing varies noticeably by stop, direction, and time of day. Significant queues of 200 or more people have been recorded during the peak periods at some stops, particularly the Mile 12 terminal. However, with the high-frequency vehicle departures, this translates into an average (median) queuing time of 10 minutes. The average queuing times are greater during peak hours, approaching 15 minutes, but they falling between peak hours, with no queuing recorded at many stops.

In addition to the performance indicators, the evaluation gives more insight into the nature of the ridership and the impact of the BRT-Lite system on travel behavior along the corridor as well as on Lagos as a whole. This insight is described in the following sections.

### **How many passengers take the new system?**

Use of the BRT-Lite system has been observed through a series of boarding surveys, which reveal the following figures:

- The system serves 195,000 passengers on an average weekday.

- Over 1,150,000 passengers pass through the system in a full week. The application of locally derived annualization indicates that the system may carry about 60 million passengers over a year of operation.

The daily ridership volume of the BRT Lite system already place it as one of the largest bus systems in the world in terms of passenger numbers. Although the system does not approach the ridership of the TransMilenio system in Bogotá, Colombia, which employs dual lanes and an extensive network of local end express services across the city, the BRT-Lite patronage is comparable to that of many of the individual lines in Curitiba, Brazil, and approaches that of the Metrobus in Quito, Ecuador.

### Comparison of 10 Urban Transport Systems in Length and Ridership

Name	City	Country	Length (km)	Population (millions)	Peak hour one-way	Daily two-way
TransMilenio	Bogotá	Colombia	84	7	45,000	1,300,000
Assis Brasil Busway	Porto Alegre	Brazil	4.9	3.7	28,000	290,000
Metrobus I El Trole	Quito	Ecuador	16.1	1.8	7,000	240,000
9 de Julho Busway	Sao Paulo	Brazil	7	10	35,000	196,000
BRT Lite	LAGOS	NIGERIA	22	15 +	10,000	195,000
Sul Busway	Curitiba	Brazil	10.1	2.7	13,000	156,200
Blok M Kota Line 1	Jakarta	Indonesia	12.9	9.8	6,500	100,000
SE Busway	Brisbane	Australia	17	1.7	18,000	150,000
Megabus	Pereira	Columbia	16.7	0.7		45,000
Adelaide O-bahn	Adelaide	Australia	3	1.1	4,000	30,000

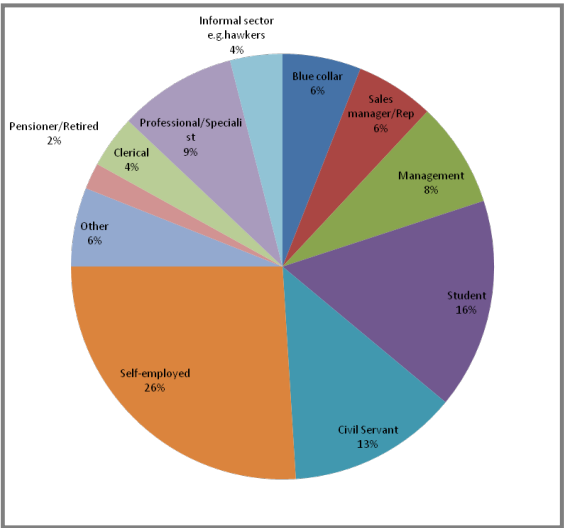
### What is the mode share for the BRT-Lite system?

The BRT-Lite system currently carries over a quarter of all the trips recorded along its corridor (or 37 percent of public transport trips), even though BRT-Lite vehicles represent just 4 percent of vehicles on the route. The system carries nearly a tenth of all trips inbound to Lagos

Island, the commercial heartland of Lagos and a main destination on the route.

The level of demand is currently constrained by the capacity in peak periods. Thus by increasing its capacity, the BRT-Lite system could tap the demand currently being served by other transport modes.

**Who uses the BRT-Lite system?**



Analysis of the occupations of BRT-Lite users demonstrates that a broad range of travelers use the system. A large majority are self-employed, reflecting the local prevalence of entrepreneurs running their own businesses. Civil servants and students also constitute a significant proportion of the BRT-Lite ridership. And there is evidence of ridership among the higher-ranking employment categories, including management, professionals, and directors.

## What were passengers riding before the BRT-Lite system opened?

The majority of BRT-Lite passengers were using the existing public transport:

- Eight-five percent were taking *danfo*, the small commuter buses.
- Eight percent were using the larger *molue* or commercial buses.
- Four percent were traveling by car, and a further 2 percent by taxi, *okada* (motorcycle taxis), or *kabu kabu* (shared taxis).

The modal shift from private transport appeared to be relatively low. However, evidence that even a small

“My husband drops me at TBS and I get BRT to work most days.” —A commuting lawyer

proportion of previous car users have been willing to use the new system is testimony to a change in thinking in a society in which car ownership is an aspiration, marking a change in status from which people rarely retreat.

## What is the main travel purpose of BRT-Lite users?

Survey data show that during the morning (0600–1000) and evening (1600–1900) peak hours the majority of travelers are commuting to or from their places of work. Business customers account for over a quarter of all trips, and this proportion remains fairly consistent throughout the day. The majority of shopping trips occur during the inter-peak hours, accounting for a quarter of the trips during this period compared with under 10 percent during the morning peak hour and 13 percent in the evening.

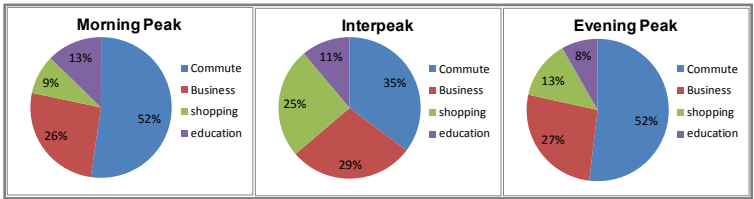
“I am happy for my children to use BRT to go to school. There used to be too much risk with *danfo*.” —A mother

Education-related trips account for about 10 percent of trips across the day, with a slight bias toward morning and interpeak



periods—that is, the main portion of return school trips are likely to take place before the evening peak period.

**Journey Purpose of BRT-Lite Passengers by Time of Day**



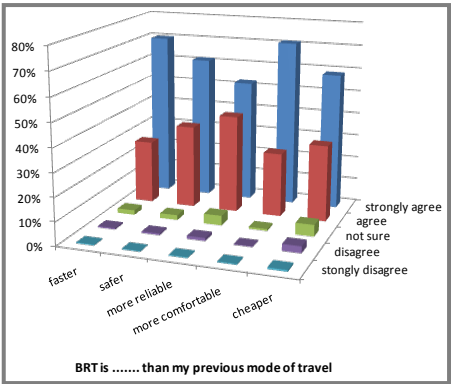
**What do BRT-Lite users think of the new system?**

User opinion of the new system is strongly positive in comparison with opinion on the alternative modes of transport. A majority strongly agreed that the BRT-Lite system is better than other modes in all the journey attributes mentioned. In particular, respondents found the BRT-Lite system to be faster and more comfortable than the alternatives.

In all attributes, over 90 percent of respondents agreed or strongly agreed that the BRT-Lite system is better than the previous mode of travel. The system is, then, clearly considered to be superior to other modes by the vast majority of users.

**How does the BRT-Lite journey compare to alternative travel options?**

The reasons for the popularity of the BRT-Lite service became clear when respondents compared the relative



journey attributes of the system with those of the alternative modes of transport. Because the other public transport vehicles are now limited to the service lanes, those that still ply the route tend to focus on the shorter journeys, thereby attracting passengers who are traveling shorter distances or from intermediate stops where the BRT-Lite capacity is limited. It is therefore necessary to transfer from one transport to another to make an end-to-end journey from Mile 12 to CMS if traveling on other public transport modes. An example would be a two-stage trip from Mile 12 to Ojuelegba, and then on to CMS. The alternative from Mile 12 is to access the island via the Third Mainland Bridge, although the majority of services using this route terminate at Obalende from which a further short stage is required to reach CMS. The journey attributes for the two alternative journey options compared with the BRT journey are as follows:

Mile 12 to CMS	Other public transport on corridor	Via Third Mainland Bridge	BRT-Lite
Total in-vehicle journey time	78 minutes	64 minutes	55 minutes
Fare (Nigerian naira)	230	120	100
Interchange	1	1	0
Total wait time	45 minutes	10 minutes	15 minutes

For end-to-end journeys, the advantages of traveling by BRT-Lite are clear. The journey is faster than that using the other route options; passengers save about 10–20 minutes in vehicle time. Journey time advantages are further increased compared with other in-corridor trips by avoiding the need to change transport to access the central business district.

The BRT-Lite offers a premium service in terms of both run time and vehicle quality, but its fares are actually lower than those for other travel options. The BRT-Lite fare is particularly preferential to competing modes along the corridor, where the requirement to transfer from one vehicle to another and the high fares for shorter journeys lead to a significantly higher fare for the full journey. There is evidence that other

operators are attempting to profit from the demand that does not choose the BRT-Lite service, primarily because of the capacity constraints of the system.

So, with every aspect of the BRT-Lite journey comparing favorably against the competitive modes, what do BRT-Lite users point to the most important factor behind their choosing to use the system?

- *Quicker journey time:* 35 percent of respondents
- *Comfort:* 20 percent of respondents
- *Cheaper than alternatives:* just under 20 percent of respondents
- *Safety or the improved security of the system:* 13 percent of respondents
- *More reliable:* 5 percent of respondents

### **Has the BRT-Lite system changed passengers' travel patterns?**

The introduction of the BRT-Lite service has influenced some travelers to change their travel patterns. Nearly a quarter of travelers questioned said that their use of the service had led to a change in the time of day that they traveled. Eighty percent of these said that the greater speed or reliability of the BRT-Lite service allowed them to travel at the time they wanted rather than having to leave early to ensure reaching their destinations in time. Just 6 percent changed their time of travel for the negative reason of avoiding the queues for the service.

Fifteen percent of travelers stated that they changed the number of trips they made, of which four-fifths made more trips using the BRT-Lite system for positive reasons such as the reduced journey time, cost, comfort, or improved accessibility. Of the respondents who said they made fewer trips, some of these were attributed to the reduced requirement to transfer to another vehicles, which again is positive, if not strictly constituting a change in the number of trips (as opposed to trip stages).

Eighteen percent of travelers had changed their destinations, mainly to those served by the BRT-Lite route, although a couple of respondents mentioned that the BRT-Lite service allows them to travel to locations farther out than was practical previously. This is a clear indicator of the potential of the BRT-Lite service to influence land use decisions.

**How does the BRT-Lite system fit into the full journey pattern of travelers?**

Analysis of trip-making patterns has shown how the BRT-Lite system occupies part of a series of travel modes between origin and destination. Only around a third of travelers use the BRT-Lite service as the sole means of making a journey.

A large proportion of BRT-Lite users take *danfo* for a leg of their journeys, and *okada* is a popular mode as well, used as a means of access to the transport network and the BRT-Lite corridor. On average, the number of stages needed for BRT-Lite passengers to make a single trip for is 1.96.

**Modes of Transport in the BRT-Lite Corridor**

Mode taken	Percentage of travelers
BRT only	31
BRT, <i>danfo</i>	41
BRT, <i>okada</i>	17
BRT, <i>danfo</i> , <i>okada</i>	7
BRT, taxi	1

## **Conclusion: Critical Success Factors**

According to the recent evaluation, the BRT-Lite service has had a significant impact on those traveling along the Ikorodu Road corridor in Lagos. It has produced a new interpretation of bus rapid transit that is rooted in established BRT practice but is grounded in a detailed understanding of local user needs, the key requirement being effective delivery. In this way, the BRT-Lite service has been able to improve the quality of lives of not only its users but also those who travel along the corridor by other modes and those who choose to locate their businesses there. It also provides a platform on which to develop a network of BRT routes as part of the city's integrated transport network. In its current form, the BRT-Lite service is both proof of a delivery mechanism and a pilot scheme from which improvements can be made. It is also a demonstration of focused delivery in challenging circumstances and therefore is an important reference case for those seeking to develop bus rapid transit elsewhere. The success is evident in the widespread interest in developing similar approaches in the Nigerian cities of Port Harcourt, Ibadan, Calabar, and Kano as well as cities elsewhere in the world that have visited and reviewed the BRT-Lite system.

The central challenges in implementing the BRT system in Lagos were accommodating the high levels of demand in the face of a dilapidated infrastructure of limited capacity, ensuring that operations were sustainable by means of the appropriate delivery structures, establishing the appropriate regulations and ensuring compliance, and winning the support of the people of Lagos.

This document has summarized the definition, process, and performance of the BRT-Lite system. The critical success factors are considered to be the following:

- LAMATA, a public transport authority that has the appropriate expertise, energy, and desire to succeed and that is able to

plan, regulate, and form relationships to ensure the delivery of public transport services.

- Political commitment and support with a clear focus on outcomes when difficult decisions are required and opposition surfaces.
- Supportive transport organizations, together with a stakeholder engagement program that educates, defines roles, and demonstrates the benefits and linkages in cross-sectoral delivery involving public and private participation.
- The effort to define a form of bus rapid transit that meets user needs, is appropriate to the context in which it is placed, and is affordable and deliverable in the broadest sense.



Beautification



Empowerment



Safety