

Africa's First Full Rapid Bus System: the Rea Vaya Bus System in Johannesburg, Republic of South Africa

Heather Allen

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Heather Allen is a recognized expert in sustainable urban transport. Her international experience includes working on public transport, sustainable development and climate change for the past fifteen years at the International Association of Public Transport (UITP) where she also developed and managed their sustainable development programme and internationally acclaimed sustainable development charter. She has presented widely and written numerous articles, position papers and reports on these issues and is also a founder member of the joint initiative Bridging the Gap and the UNDESA led group on Low Carbon Transport SLoCat, with more than fifty organizations. Contact: heather.allen@uitp.org.

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Introduction

Johannesburg is the political capital of the Republic of South Africa, situated in Gauteng province. Gauteng province is the most densely urbanized area of the Republic and it is home to 11.3 million people (Raboroko and Whitehead, 2009). Despite a growing economy, there is extreme income disparity and around 63 per cent of households do not own a car (Weinstock, 2009).

The awarding of the 2010 (19th) FIFA World Cup event to Johannesburg stimulated an intense interest in improving the transport system in order to live up to the projected image of being a 'World Class City'.

At the national level, 12 cities were singled out to receive extra support to upgrade and integrate all modes of public transport in line with hosting this event. 9 of the 12 cities were host cities to World Cup events. In particular Johannesburg, Cape Town and Nelson Mandela Bay Metropole would need to accommodate the fans and tourists that would visit during the events. The Johannesburg system Rea Vaya was planned and implemented in time, but most of the bus systems in other cities (although also part of the legacy) are still becoming operational. The BRT in Cape Town is also functioning and it can be considered to be Africa's second system. On the other hand, Nelson Mandela Bay opted for a mixed system which included some rapid bus (BRT) and conventional bus services. Other cities were able to make some improvements to basic infrastructure and put Park and Ride systems in place for the games.

Rea Vaya is, therefore, the first full bus rapid transit (BRT) to be implemented on the African continent and it was chosen as a case study as there are many learning experiences that can be replicated in other cities. Its key objectives are:

- Economic growth;
- Poverty alleviation;
- Restructuring the apartheid city;
- Sustainable development;
- Good governance.

One of the most challenging aspects of implementing any transport reform is the resistance to change of those who are benefitting most from the present system. In much of the developing world this usually means the informal minibus owners and drivers and the various types of taxi service. In Johannesburg, it was known that much of the resistance to any changes in transport organization came from the powerful taxi unions. These strong groups kept tight control of their businesses and made solid defence of the right to operate unhindered and, as far as possible, un-regulated. This was identified early on as a major challenge and tested the political commitment to the limit.

1. The Lagos BRT, which was implemented in 2007 (before Rea Vaya), although quite successful, does not have many of the defining features of a BRT, and is classified as a 'Lite' version of the classic BRT. Therefore Rea Vaya can be considered to be the first full BRT on the African continent.

This case study demonstrates the need for consistent and committed political support, which was boosted by the need to demonstrate that Africa could successfully host these world class events. African cities are in desperate need of decent public transport services yet their introduction is often hampered by a strong and influential informal and taxi transport sector. This case study was chosen as it highlights ways to include these important and vocal groups by using a cooperative and inclusive stakeholder approach. Another notable aspect is the sharing of experience from other developing countries, especially in respect to operating the new bus system. Notably experience from Colombia played a key role in the decision to introduce a full BRT bus system and at a later date further operational know-how was brought in to provide operational management and expertise gleaned from the BRT system in Bogotá.

Background

The political history of South Africa has had a significant impact on the shaping of public transport in Johannesburg. The apartheid system that was in place from 1948 until 1994 influenced spatial planning that was designed to keep the pool of African labour living in townships located sufficiently far away from the economic hub and traditional white areas, but still close enough to low paid jobs so the labour pool could be used as and when needed. The majority of township areas are situated between 25 and 30 km away from the central business district, leading to significant transport challenges. Informal bus services grew up to fill the void left by a lack of investment in public services to the townships which are still where most of the poor people live.

In the late 1980S, little commitment or attention was given to develop a comprehensive urban plan for the city and many of the traditional central business district functions were dispersed and a polycentric city with multiple destinations not related to sources of labour began to emerge. Wide freeways and plentiful free car parking were built in the 1970s and 1980s, only benefitted the small percentage of the population that had access to a car. Limited train services continued and bus services served the predominantly (relatively) affluent white areas of the city rather than the townships.

Figure 1. Rea Vaya, the first full BRT system in Africa, opened in Johannesburg, South Africa in August 2009, giving new meaning to the city’s motto: ‘A world class African city’



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The lack of investment in public transport coupled with the long distances (beyond a reasonable walk or bike trip) which separated home and the work place led directly to the growth of the informal ‘taxi minibus’. In the beginning this development was viewed as a positive ‘entrepreneurial’ commercial trend as it required little or no state control or support. The ability of the private sector to make money with low levels of investment quickly led to an oversupply and intensified competition between rival suppliers. By the 1990s, as in many cities across the developing world, the situation had degenerated into a system that served best the owners and operators, marginalizing the user with poor travel times, high and unstable fares and dangerously maintained vehicles driven by drivers with poor skills.

Public transport in Gauteng Province was provided by a multiplicity of uncoordinated operators. In 2003, 47 per cent of all trips (1.645 million of 3.5 million trips) were made using this informal type of public transport. Most trips were made by minibus/taxi (72 per cent), a decreasing amount by train (14 per cent) as service levels declined, only 9 per cent by city bus and the rest by walking and cycling (although cycling is no longer common today due mainly to unsafe roads) (Brader, 2011 and Matshiga, 2011).

The minibus taxi industry is still the most dominant mode of public transport in Johannesburg. As many as 85 per cent of the trips made by collective transport (usually minibus or collective taxi) needed one or multiple changes (Matshiga, 2011). A lack of integrated fares between the different operators, meant transport costs accounted for a disproportionately high proportion of household budgets, especially hitting the poor who often had to make longer trips (as much as 40 per cent in some cases (Raboroko and Whitehead, 2009)).

Observed maximum capacity of minibuses in South Africa is only 4200 per hour per direction (14 passengers per vehicle are legal but many overload and 350 vehicles in a typical high occupancy lane, HOV) (UN-HABITAT, 2010). It was therefore evidently clear that a mass transport system of some sort had to be in place by the time of the World Cup.

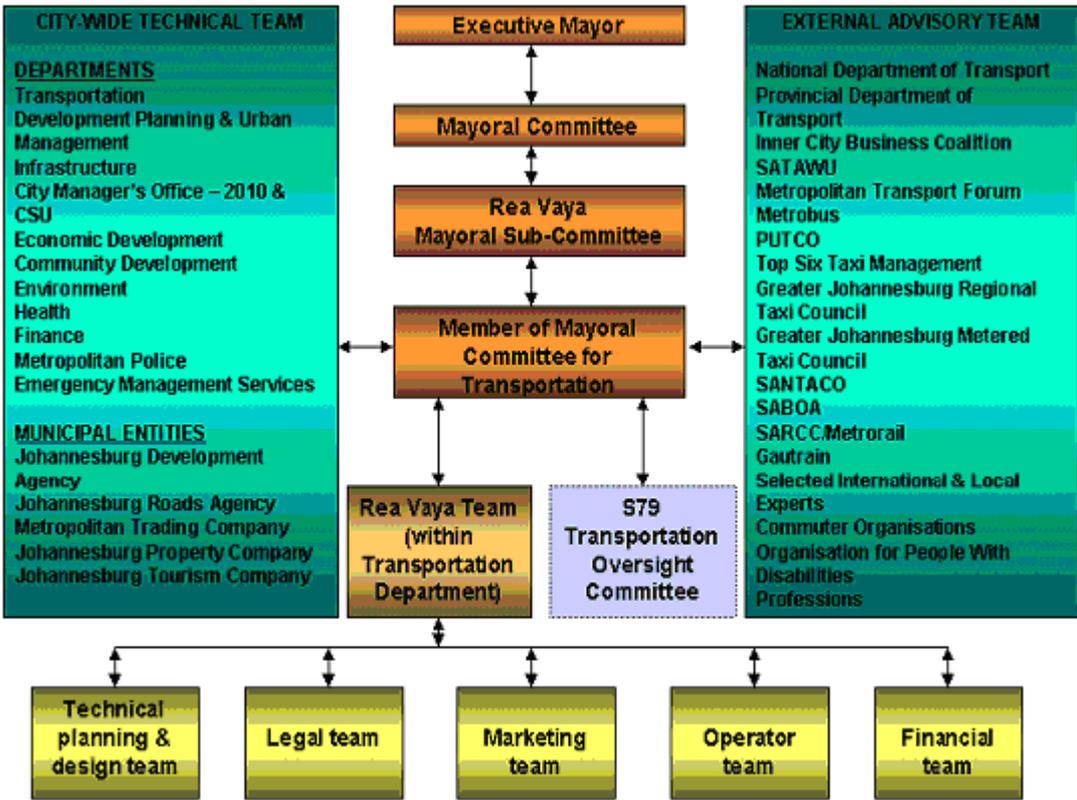
Institutional Reform

Today, there are four levels of institutions responsible in some way for transport in South Africa. There are national, regional (provincial), city or metropolitan area and local or district bodies. The national Ministry of Transport is responsible for policy and legislation for transport. It is also responsible for:

- Implementing national policy and legislation;
- Co-ordinating the functions of the Department of Transport;
- Preparing and initiating legislation; and
- Performing any other executive function provided for in the Constitution or in national legislation.

The Gauteng Provincial Government’s role is to ensure the implementation of national policy across the province by providing oversight and integration. A creation of a new body called the Gauteng Transport Management Authority is responsible for improving transport at the regional level as well as developing and setting quality standards and norms. The Gauteng Intermodal Strategic Public Transport Network (GISPTN) forms the basis for reform and requires linkage between the road and rail networks and the intermodal nodes. It also prioritized public transport services and investments in developing infrastructure. Other cities surrounding Johannesburg are also planning public transport improvements, mainly bus rapid transit systems.

Figure 2. City of Johannesburg Rea Vaya institutional structure



Part of the plan was an ambitious rail link between Pretoria and Johannesburg. The existing heavy rail service was managed by a subsidiary of national government and a new intercity rail service, the Gautrain, is part of the national transport development plan. Gautrain is managed by the provincial Gautrain Management Agency and operated by a concessionaire Bombela which includes the Paris operator RATP. It opened for initial services in 2010 and became operational along part of the route in early 2011. It extends some 80 kilometre, with 10 stations and its bus link system brings new standards in public transport to the people of Gauteng. Its delivery has been thorough a public-private partnership.

Within the province at the city level, the Johannesburg City Municipality develops local transport policy and acts at the local level via the Johannesburg Roads Authority. It has responsibility for planning and installing transport infrastructure, and road and transport safety across the city.

Early Stages in Developing the Project

In 2003, the City of Johannesburg formulated an Integrated Transport Plan (ITP) signed by the political head of province as well as the minister of transport. It consisted of modest priority for public transport, both minibus taxis and buses, improvements to kerbside lanes, modest infrastructure for commuters, better signage and improved passenger information. These improvements really gave minibuses a better traffic environment to function rather than creating a proper public transport network across the city.

The original plan was to build kerbside lanes for the existing minibus taxis in a few locations (i.e. some infrastructure improvements but with no real operational changes). However the City of Johannesburg's decision to start operating a commercial bus service, Metrobus, from Soweto (a local township) to Johannesburg in October 2005 stimulated dissatisfaction between the city authorities and the minibus and taxi unions, who felt that they had not been properly consulted. This created a situation where trust between all the parties was lacking.

Typically in transport there is a split in responsibility between national and city governments that can be challenging to resolve. Added to this is the obvious need to engage existing operators and establish a forum under which they can productively participate in the development and eventual delivery of mass transit. The technical skills required for planning are complex and varied, and more often than not do not exist at the local level. It could be said that this was the case in Johannesburg. It was not until city officials and the Mayor became aware of the system in Bogotá, Columbia that the idea of developing and adapting a BRT system for Johannesburg was born.

In 2006, and following municipal elections the new Mayor created a transportation department within the City of Johannesburg government more specifically to look at organizing urban mobility better. The responsibility for transport planning and regulation within the city boundary, while it also had two municipal owned entities under its control: the Johannesburg Roads Agency and the Metropolitan Bus Company. The buses in service were low quality and poorly maintained. However, the company did possess (at least in part) the knowledge and skills of how to run a public service bus company, which was recognized and later used to help create the temporary bus operating company CLIDET.

The new city administration decided in particular to more aggressively explore the option of BRT rather than just the limited priority for public transport. A scoping study was started following a study tour to Bogotá, Columbia and Guayaquil, Ecuador.

Johannesburg took a step by step approach. First it established a planning and development department for the delivery of the BRT. The BRT system had to be planned within a fairly constrained urban environment and requiring limited land acquisition (always and costly and time consuming business). It would be planned as the backbone of a future transport system interconnected with rail to provide high levels of accessibility and capacity.

However, once Councillor Rehana Moosajee (a leading supporter of the project) learned about the potential of bus rapid transit systems (BRT), she realized it had significant advantages for the customer and a new project direction was taken. A BRT is an express bus service that functions like a metro, running on dedicated lanes with other operational features such as off board fare collection that allows it to carry high passenger numbers. The Transmilenio system in Bogotá carries as many as 40,000 passengers per hour per direction which is more than many average rail based systems.

Design and implementation of the BRT

Attention was given to making the system and stations functional and attractive. This included pre-paid boarding (buying the ticket off vehicle); level boarding for full accessibility; multiple stopping bays; secure, weather-protected stations which were also aesthetically pleasing with a 'local' flavour to the each station. Stations have been designed with the local urban environment in mind and local artists have been commissioned.

Figure 3: A Rea Vaya station



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Phase one becomes operational

Contracts were signed in late 2006, construction started in 2007 and first operations commenced in 2009. Phase 1A started with 25.5 km service linking the Soweto township to Ellis Park, on the east side of the Johannesburg central business district. Five feeder services and two complementary routes are linked to the trunk, requiring 143 buses. 41 are high door articulated buses running on the dedicated route and 102 are 13metre length buses for complementary and feeder services. These have both high and low level doors on left and right sides to allow for kerbside and station boarding.

It was strategically an important line to open first as Soweto used to be little more than a slum settlement. Today it is a densely populated township still scarred from violent riots in the mid 1990s. Fragile infrastructure has been put in place but those that live there still feel marginalized – to have a quality and high profile bus service on their doorstep was therefore also a question of civic pride. Passenger numbers on this first phase were 17,000 daily by December 2010 and they have grown to 44,000 daily by May 2011.²

Initially bus operations were started with a temporary bus operating company called CLIDET. This was created in part so that the bus orders could be placed and the buses delivered while negotiations were still going on especially with the taxi operators. The city took the initial financial risk on this structure, but eventually it would be transferred to a private firm. Operations would be taken over by the newly formed bus operating company created with various shareholders including the disaffected taxi operators with a negotiated contract. All would be operated at least initially by a single company, as the system develops this could change. As there were few skills or experience in running formal bus services locally available, existing bus operators from Metrobus and PUTCO were used for the interim management of CLIDET, the temporary bus operating company.

By January 2011, a private operating company called ‘Piotrans’ had been created and began operating the Phase 1A operations of Rea Vaya. Piotrans is a partnership between existing

2. Personal communication with the Department of Transport of City of Johannesburg.

minibus operators and one of the principal operators from the Bogotá TransMilenio system, who is a shareholder in this new venture.

Buses operate at 3–4 minute frequencies at peak and 20 minute frequencies at off peak. A simple fare structure is in place and at the moment the BRT fare is slightly lower than the equivalent minibus taxi. Paper tickets are still being used until the smart card system is operational, and therefore fares on some routes are not yet transferable.

Main operational features of the system:

- Articulated buses run in exclusive trunk median bus lanes.
- Enclosed median stations have controlled entry/exit, are modular in design, naturally ventilated, and fitted with electronic sliding doors to vehicle entry/exit.
- Each station has at least three staff (and is equipped with real time information although this not fully operational in all stations yet);
- Each station is been decorated with local artwork to reflect local identity.
- The station platform and the bus floor are at the same height (940mm) to facilitate level boarding.
- Station docking is facilitated by yellow line on carriageway which is aligned with yellow, dashboard marking.
- Feeder services use median stations at terminals to facilitate effective interchange.
- Complementary and feeder buses which have doors on both sides. This allows passenger boarding/alighting in the median on trunk routes and at kerbside (via steps) on other roads.
- The buses have multiple doors which speed up boarding and alighting.
- All fares are paid before boarding the bus. Paper ticketing will be replaced by smart cards during 2011.
- Passing lanes at bus stations and multiple stopping places to reduce bunching as the system develops.
- Traffic signals are used to give priority at junctions; these will eventually be linked to the urban traffic control system.
- Buses operate at high frequencies (every three minutes in the peak, every 20 minutes off peak).
- To ensure high capacity in the future, the trunk route has passing lanes for express buses and multiple stopping bays at stations.

Phase 1B will take the system up to a total of 43 km with 120 buses and carrying an estimated 80,000 passengers per day and it should be operational by the second half of 2012. Phase 1C which completes the first phase of the BRT network is planned to be operational in 2013 - 2014. The speed at which the phases are being implemented has been slower than expected partly due to delays in approval to remove one lane of mixed traffic in the corridor leading to the main financial and central retail district and strong lobby from car drivers.

Bus management system using Intelligent Transport Systems (ITS)

A robust but affordable bus management system was required, as there are many financial gains that can be made with the successful implementation of such a system. The Automatic Public Transport Management System (APTMS) was developed by a private consortium to deliver an ambitious range of information and services, including dynamic passenger information.

The whole issue of passenger information was itself a new concept to both those providing public transport and those using it – timetables were simply spread by word of mouth. Occasionally minibuses would be numbered but they were known by the drivers' names, routes varied and stopping places were very approximate. The concept of having to run to a set timetable and frequency whether the bus was full or not was therefore a learning curve, not only for the drivers, but also the passengers.

The whole system is supposed to be managed by a centralized control centre with CCTV monitoring on vehicles and in stations, that allows headways to be monitored and provide direct voice communication with station staff and drivers; however to date this is not yet fully functioning.

The APTMS has delivered simple IT solutions to:

- prescribe and schedule services operated by Bus Operating Companies (BOC) on a weekly basis to meet the set quality levels;
- optimize vehicle allocation and dispatching;
- monitor service quality of operations, late buses etc. and administer penalties; and
- provide CCTV security camera linked back to the control centre for monitoring the stations and their immediate vicinity.

There are still several desirable aspects of the management system that are either only partially operational or not yet in place:

- automatic vehicle location to manage the fleet following predetermined schedules;
- interfaces between operators, the control centre, the depots and management of the automatic fare collection (not yet implemented);
- allow traffic signal prioritizing;
- communication with drivers, both verbally and through messaging;
- provide real time dynamic passenger audio and visual information (e.g. time of the next bus arriving and simple route planning for passengers); and
- monitor in-bus activities and incidents through close circuit TV (CCTV).

It has however been able to provide rapid, secure uploading and transmission of data (via WLAN) to allow for the allocation of costs to the bus operators on a weekly basis. This system was contracted and paid for by the city.

Stakeholder Involvement

Initial discussions took place before the notion of a BRT was launched with the minibus taxi industry in 2006 with face-to-face meetings with the two largest taxi organizations, known as Top Six and the Greater Johannesburg Regional Taxi Council. Given the rivalry between the two organizations many of these initial meetings had to take place separately.

As seen with the Soweto service, the concept of a 'formal bus service'³ was contentious; any discussions about a high capacity quality BRT would need to be carefully put forward. Great efforts were made to positively engage with the taxi minibus industry from the start. That said, it was however difficult and challenging to identify the main actors that should play a role in discussing the project and identifying those that would be most affected by the introduction of the new transport project.

3. A formal public transport service can be described as a service with a certain level of quality, which runs to a scheduled timetable on designated routes with a published fare structure.

The taxi community was invited to join a study tour to Bogotá, Columbia in order to understand better the concept of a BRT and from the municipality's perspective valuable knowledge on how such a system could be implemented in Johannesburg would be gained. Key stakeholders on this tour included: Top Six, the Greater Johannesburg Regional Taxi Council, PUTCO (a private bus company), Metrobus, the City's transport department, and selected politicians. The outcome of this study tour was that all parties agreed that BRT was something that could suit the transport needs of Johannesburg.

One of the challenges that the city faced was establishing exactly who was going to be affected by the project. It became apparent that there were possibly as many as eight vehicles operated under one licence, making it difficult for the city to determine exactly who should be included as a stakeholder. To simplify matters the city was obliged to certify the affected taxi operators in a database.

Eventually all stakeholders, namely the two major and rival taxi organizations along with sixteen others that would be affected by Phase 1A of Rea Vaya, were brought together to form a taxi industry steering committee. This committee became the main body for negotiating and finding solutions to problems with the city. One of their first requests was that the city would pay for a technical expert to represent their interests. This was agreed as it was felt that it was instrumental in allowing the continuation of positive discussions with the steering committee.

A further study tour was undertaken to Bogotá and Pereira (Columbia) in August 2007 with all 18 affected organizations and the steering committee. Subsequent to that tour, in 2008 a Memorandum of Understanding was signed between the City and Metrobus (for the public sector) and PUTCO (for the private sector) to set up a consultative and engagement framework for the planning design and implementation of Phase 1 of the BRT. This set out the broad framework for how the negotiations between all stakeholders would proceed and included financial assistance from the city for a project office over and above the technical advice already sought.

Both the city and operators undertook a series of workshops and road-shows especially directed towards other minibuses operators (not directly affected by the BRT) to introduce them to the concept and explain how the system will be implemented and to persuade them to cooperate with the city rather than oppose and fight against it, which historically was the normal way the industry reacted when subjected to any reforms to public transport.

Initially 585 taxis had to be withdrawn along the BRT corridor⁴ and their owners were compensated and became shareholders in the new bus operating company. Financial arrangements needed to be agreed on either the resale or scrappage value of these vehicles. This was not easy as some licensed routes were high value and some not. In order to achieve the objectives, it was decided to negotiate on the higher value, rather than the true, value of the routes. Displaced drivers were offered reemployment and training in the new scheme and 80 ex taxi drivers obtained secure jobs in the BRT operations in the first phase.

Compensation was payable to the owners of four groups of vehicles:

- 163 vehicles put into storage since November 2009 as a response to the Starter Service introduced on 30 August 2009;
- 138 vehicles placed in storage since April 2010 as a response to the additional service expansion on 15 March 2010;

4. This was estimated after carrying out a survey.

- the remainder of the 585 vehicles that will be removed from their routes and scrapped or sold as part of the process of subscribing for shares in the BOC;
- an additional 65 taxis owned by 28 union members who are able to provide adequate documentation demonstrating to the City that they were prevented from operating by intimidation, (Brader, 2011)

A value chain policy framework approved by the Mayoral Council in 2009 set out the employment, business and investment opportunities for minibus taxi operators arising out of the implementation of the Rea Vaya BRT system. It provided for affected taxi operators, among others, to be eligible to benefit from certain preferential procurement processes. The Value Chain Framework Agreement reflects agreement between the City and the Phase 1A Taxi Industry Negotiations Team.

The agreement allows the release of funds from the scrapping or sale of vehicles and subscription for the shares, and for the transfer of ownership of the bus operating company (BOC) from the Trust to the taxi operators. It also provides for unsubscribed shares to be held in reserve for affected operators entering the process in response to the closing advert, and sets out the process for them to subscribe for these reserved shares. Any that are still not taken up will be held in reserve for potential issue to further eligible shareholders, but after a year they will be released from reserve and remain part of the authorized but unissued share capital of the BOC.

In February 2011,⁵ some 300 minibus operators organized into 9 companies called Taxi Operator Investment Companies (TOIC) became shareholders in the new bus operating company (to replace CLIDET) under a clear and transparent allocation scheme based on shares and employment opportunities.

The process to get to this point was certainly not easy and there were moments when there was widespread and visible opposition from other actors in the taxi industry, especially at regional level who felt that those involved were getting a better deal, creating unfairness in the sector.

Two major taxi strikes had to be contended with- one prior to the opening of the first phase and one in the opening month. Violent clashes led by some more aggressive members of the taxi industry (in particular those that had seen others benefit from the quite generous financial terms and extra training made available to them as affected incumbents) included shooting at the buses in the first few days of operations in which 11 people were injured and the death of one person.

The city was helped to overcome these difficult times by overwhelming public support, possibly as a result of its transparent and fair negotiations and its tireless efforts in its outreach.

Financing and Contracting

Rea Vaya was financed primarily through the national Public Transport Infrastructure and Systems Grant (PTIS) given to the City by Central Government. This funded the construction of the roads and stations along the route in addition to the transformation and transitional operating costs. In addition, grant funding was received for the employment of support staff and consultancy contracts.

5. The potential shareholders were worked out by June 2010 but the formal start of the bus operating company was not until early 2011.

Average construction costs were US\$8–9 million per km (including the depots and control centre). Significant extra capacity has already been built into the system to help avoid expensive extra costs at each upgrade.

The city provides the infrastructure including the depots, all fare collection equipment and the ITS APTMS system. Contracts with the private sector have been put out for the fare collection system and operation, the station management and obviously the bus operations. It is expected that the operations should be covered by the fares but other aspects will need to be subsidized in the initial period. Much of the initial funding (around US\$300 million) has come from national government as part of the World Cup legacy (e.g. grants for planning, etc.) and the remaining challenge is to make the system financially sustainably for the future. A further € million of support came from overseas development assistance especially in the form of technical assistance in planning, implementation and training.

Financing operations

Every week Piotrans (bus operating company) submits an invoice to the City of Johannesburg after the reconciliation process validating via the APTMS system for the number of kilometres travelled and based on a fee per/km per type of bus. Funds are transferred to an account at an agreed bank who acts as a sort of independent body that pays the bus operating company according to the agreed charge per km. Central Government provides an operating subsidy to the City of Johannesburg to cover, primarily, system management and maintenance costs but also to make up any revenue shortfall payable to the BOC. It is foreseen that this should only be needed while the system is settling in and the passenger numbers are not at the expected levels. The BOC makes repayments on the vehicle loan, salaries, direct costs and any sub contracts with a portion retained as profit.

The decision to use gross cost contracting at above market rates to engage effectively with and compensate existing operators has increased operating cost and also places the task of market growth within the public sector entities creating policy/strategy and managing the contracts. This places great emphasis upon ensuring that service level is adequately specified and controlled. The City of Johannesburg has the task of growing the market in order to reduce subsidy burden.

Agreements with the taxi operators

Five framework agreements including a termination of negotiation agreement to ensure closure had to be separately negotiated and agreed. It took around four years to reach this point and the process included study tours, workshops, seminars and meetings between the various players. An example was the ‘Participation Framework Agreement’ signed by the City and representatives of the affected operators on 27 January 2010. This agreement sets out the process of becoming a shareholder and all the qualifying requirements. It details the allocation of shareholding per each of the ten affected taxi associations (representing the owners of 585 vehicles withdrawn from the BRT route⁶), the documentation required of each applicant for shareholding, such as a valid permit or operating license for each vehicle to be withdrawn from an affected route, the City verification process for ensuring that applicants qualify as potential shareholders and the mechanisms to deal with equitable allocation within associations and over-subscription for the available shares.

6. The city estimated that there were some 1000 buses operating in the Phase 1 corridor but as the BRT would not serve all the origins and destinations only 585 would be removed from service and either scrapped or sold (with compensation).

In return for shares, a contribution towards the working capital of the cooperative bus operating company (BOC) had to be made and guarantees that the taxis are removed from service, delivered to the City's appointed auctioneers for scrapping or sale, and surrender of their operating licenses. Penalties for those that failed to meet the verification processes according to the Participation Framework Agreement in the agreed time frame are no longer eligible for compensation.

Employment aspects

The Employment Framework Agreement (EFA) was signed between the City and taxi industry negotiating team on 16 July 2010 to deal with all employment issues. The EFA states that each shareholder can nominate one employee per vehicle surrendered. The nominated employees and their CV's and details will be recorded in a database, and they will be given the first opportunity by the City and the BOC to benefit from Rea Vaya employment opportunities, to the extent that they are qualified and suitable for the positions. A shareholder whose employee has already become a Rea Vaya driver may not nominate a further employee. EFA binds the BOC to endeavour to recruit future drivers from the nominated employee database for a further two years from 2010 if and when vacancies arise. It also requires the BOC to employ 80 per cent of its unskilled staff from that source and 20 per cent from others, particular preference being given to residents in the communities in which Phase 1A operates.

Putting an end to the negotiations

Negotiation Closure Agreement (NCA) was signed between the parties on 4 June 2010. This recorded the milestones to be achieved and the process to be followed in order to achieve closure of the negotiations, and transfer of ownership of the BOC to the taxi operating companies. The milestones are:

- Written agreement on the fee per kilometre.
- Finalization and signature of the BOC contract. (An addendum to the BOC agreement signed between the City and CLIDET on 28 August 2009).
- Publication of the closing advert.
- Identification of the designated shareholders.
- Finalization and signature of the employment framework agreement
- Finalization and signature of the value chain agreement.

As part of the closure, the NCA also required that the taxi operating companies comply with the proper procedures for the good operations of the new bus operating company such as the submission of the Management Plan for the City's approval by the new Board of Directors, finalization of the due diligence investigation on the operating company and the clearing up of certain other features of the share allocations and subscriptions.

The closure agreement also provides orientation and training of the representatives of the designated shareholders in the day-to-day operation of the bus operating company. After ownership transfer, induction workshops for the new Board of Directors and a mentoring programme for the new key management staff has been provided. The designated Board of Directors is required to conduct due diligence and to prepare a management plan.

The City will award an interim tendered contract up to 31 August 2011. The service providers will be required to recruit 60 per cent of the employees from among the former taxi employees nominated by the taxi operating company shareholders, and train them. When this tender expires, the City will publish ring-fenced tenders for the station and security contracts.

The successful tenderer will also be required to recruit 60 per cent of its employees from the ex-taxi industry employees who were employed by the interim contractor, or if some have left, then from further ex-employees of the taxi companies' shareholders who are recorded in the nominated employee database.

Social context

It was also agreed that the development of Rea Vaya would be employment neutral (creating at least as many jobs of equivalent or better quality as it directly removes). It was also decided that it should have a strong identity and brand image – and the concept Rea Vaya ‘we are going’ was adopted. In fact 700 permanent jobs have been created in Phase 1A and some 3300 temporary jobs during the construction period.

A great deal of effort has been made to design a system that is accessible to those with mobility impairment, such as grade access and level boarding at the BRT stations (Figure 4). At stations outside of the busway, lifting mechanisms are provided as part of bus design.

This system has been a considerable benefit to all levels of society but especially to women as the areas around the minibus pick up and drop off zones were often unsafe, especially at night. The stations are manned and the surroundings are monitored.

As in all minibuses the problems of overcrowding affect women and children more than men. The initial overcrowding of the service has now been overcome.

Figure 4. Access to the stations as well as secure travel in the buses includes provision for wheelchairs



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Conclusions

The successful implementation of Rea Vaya is a real milestone in Africa, a continent that has suffered in the main from poor formal public transport for the past 25 years. An affordable but high quality bus system has been put in place overcoming significant political challenges that have hampered others before them.

City and national politicians were united in the support of reform and pursuit of Rea Vaya. In particular, the Mayor of the city of Johannesburg, Mayor (Amos Masondo) and Member of Mayoral Committee – City of Johannesburg Transportation (Rehana Moosajee) gave strong

and consistent messages that Rea Vaya represented a significant improvement in transport and accessibility for the citizens of Johannesburg and that taxi drivers and operators would have job opportunities meaning that the proposal was neutral in its impact upon employment.

Private sector consultants worked closely alongside public sector clients in order to ensure that innovation and international perspective was matched with local input and understanding. This has resulted in each scheme having a clear local identity but it still complies with internationally recognized approaches.

Taking inspiration from the Transmilenio in Bogotá a strong brand name, Rea Vaya, for the BRT was developed. (Transmilenio at the start was not called a bus service to ensure that the public felt it was something new and different). Rea Vaya project promoters picked up on this marketing aspect fairly early on.

Rea Vaya was designed to address historical inequalities, to increase civic pride and of course to provide safe, affordable transport while meeting the above mentioned growth and development goals. A long term commitment to planning, being able to adapt to new circumstances without losing focus and delivery has been note worthy in this project.

Several notable lessons can be replicated from this project. Possibly the most important is that a strong and powerful informal sector can be brought into formal and professional transport for the benefit of all. The private sector requirement to make profits can be accommodated into a public service offer that provides a socially equitable, high quality transport service. Skills need to be nurtured and the informal sector admitted that they did not fully understand this project ‘being simple businessmen’ but with support they were able to embrace it fully.

The process is quite complicated and requires considerable skills to keep all the agencies involved focussed and cooperating according to plan. However there is a price to pay – negotiated rather than tendered contracts brought the taxi sector into the project but cost the city more than they would have had to pay. Such an ambitious project needs financial support from the city in the first few years. The investment in time and money in training and increasing skills cannot be neglected and this is a public role. A strong bus management that is independent and transparent is an important investment.

Johannesburg now has the Gautrain and Rea Vaya in place as world class transport systems to take it into the future. The Rea Vaya system in particular seems to have fulfilled its role as part of a legacy from the World Cup. The Rea Vaya stations became centres of social interaction and support. Rea Vaya it seems is more than just a mode of transport – it embodied the civic pride that South Africa feels as a world class player.

One of the goals is to cover direct vehicle operating costs (maintenance and capital repayments) from the farebox. This would require at least 500 passengers to be carried per vehicle per day. Current averages are nearer to 250 per bus per day.

Financing other such ambitious projects is not easy and it remains a key challenge for the city to build up the volume of operations so that targets of 150,000 or more passengers use the services daily. More infrastructure is planned and will certainly be required. Today the cost of widening a freeway is around R91 per kilometre⁷ and the aim should be to deliver quality BRT at a cost of R40 per kilometre.

Despite this the valuable learning from managing to incorporate the minibus taxi industry should be of considerable interest to other African and Asian developing cities in particular.

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