



PUBLIC TRANSPORT

As bus rapid transit systems are rolled out, some efficiency questions linger

By: Irma Venter
6th July 2012

Yellow and **Red highlights** and large numerals **7** for reference added by Pierre Joubert

Text starts-----

Johannesburg has one and so does Cape Town. Port Elizabeth almost had one, Rustenburg is planning one, and Tshwane may finally roll out one after a delay of several years.

Bus rapid transit (BRT) systems, although they may go by different names in different cities, are high-volume bus systems making use of dedicated traffic lanes and stations.

20 The pre-2010 soccer World Cup period saw a big push for these public transport systems to be developed in all South Africa's major metropolises, but this effort largely failed. To date, there are only two systems in operation. Johannesburg's Rea Vaya opened its doors in August 2009, long before the World Cup kick-off date, and Cape Town came on stream with some 2010 FIFA World Cup services in 2010, although its first MyCiTi network was officially opened only in 2011.

21 Construction of BRT lanes in Port Elizabeth started in August 2008, but work was discontinued following opposition from the taxi industry – a problem Johannesburg overcame with much effort and conviction.

In Tshwane, a BRT system was planned for 2010, but several delays saw the project surfacing again only now, with construction reportedly set to start later this year.

Rustenburg appears to be on track with its system, with construction scheduled to start this month.

But, as the roll-out of BRT systems picks up speed and as the debate around the need for reliable public transport

heats up again in light of Gauteng's e-tolling controversy, **22** are these systems worth the time and money national government and metropolitan councils are spending on them?

Are they the efficient, high-quality public transport solution South Africans have been seeking?

Route Must Make Sense

When looking at Johannesburg as the first council to implement a BRT system, **transport economist Andrew Marsay** makes some interesting observations – especially around appropriate routing for these systems.\

Higher speed

23 BRT systems seek to blend the higher carrying capacity and segregated carriage-way features of railways with the distributional flexibility and much lower costs of buses, he notes.

“BRT systems succeed only where these strengths can be fully capitalised on.”

To achieve the full benefits that BRT systems can offer, therefore, a system needs to apply the segregated carriageway functionality across as high a proportion of the actual commuter space it serves as possible. In Johannesburg, the dominant commuter space that is served by public transport is a combination of the routes from townships into the city centre by rail and taxi, and those leading out of the city centre to the key employment nodes of Rosebank, Sandton, Sunninghill, Randburg and so forth.

Transfer penalty

24 For many commuters, the major drawback in their daily journey is the need to change taxis, or change from train to taxi in or around Johannesburg Park station, says Marsay.

The big win that had been hoped for with the introduction of the Rea Vaya BRT system was the ability to run the system from Soweto through the central business district (CBD), or even bypass it, directly to Sandton and the other nodes, thus eliminating the need for interchange.

“In practice, it has not been possible to roll out the routes to the north of the city centre to complement the link from Soweto to the city. This is partly because the infrastructure has proved more costly to implement than had been anticipated; but also because of opposition to it from residents along the proposed routes,” notes Marsay.

“As a result, a route along Oxford road to Rosebank and Sandton looks as if it is being replaced with one along Louis Botha avenue. This is unfortunate, because that route is a very strong taxi route anyway. But, more importantly, Louis Botha avenue is not the natural commuter route to the key northern-suburb employment nodes. Instead of being an optimised, express Soweto-to-northern-suburbs commuter service, Rea Vaya will remain a suboptimal complementary public transport mode – if this arrangement persists.”

Marsay calls the opposition of Johannesburg’s northern suburbs to BRT penetration “shortsighted, for two reasons”.

25 “Firstly, it will mean that instead of having the admittedly intrusive, but otherwise well-behaved, modern public transport services operating on their main arteries, residents will see the ‘reign of king taxi’ prolonged on these routes.

“And, secondly, it will mean that sub-optimal BRT services on suboptimal routes will have to be subsidised more heavily by the city than was anticipated. This will mean that the city will have to find more revenue and, to touch a currently very sore point, what better source than the northern suburban property rates. Once again, not quite what opponents of the BRT routes may have intended in their opposition!”

The best way of improving the BRT system in Johannesburg would be a reversion to routes through the northern

suburbs to the **26** employment nodes mentioned, and a push for the funding to roll these routes out as quickly as possible, says Marsay. This will require a major public relations exercise on the part of the city and perhaps also from the Gauteng provincial government and the national Department of Transport (DoT).

"Its aim should be, firstly, to convince residents of the environmental and commercial advantages, not only to the users of the system but also to these areas themselves. Successful BRT access will also underpin the continuing economic viability of Rosebank, Sandton, Sunninghill and Randburg."

When considering the national picture, Marsay says South Africa still, to some extent, suffers from the legacy of viewing a large part of its public transport system as a means of maintaining a discriminatory status quo. **A second-best solution to this problem has typically been improving the quality of "these same old services"**. However, this solution fails to reckon with the growing economic interdependence of employment nodes and residential areas, both old and new.

The ultimate motive

27 "The best solution in providing good-quality public transport starts with the realisation that it is not just about easing the lives of lower-income people who need to commute long distances. Rather, it is about **sustaining the economies of the nodes** which are **the engines of employment and economic life for everyone,**" says Marsay.

"The DoT has grasped this point, to a degree, in its plans for integrated rapid public transport networks for all the metropolitan areas in the country. **The trick, however, is bridging the gap between aspiration and realisation.** This probably requires a far greater public relations, communications, and advertising effort than is generally appreciated. Huge amounts of energy and thought are needed about how best to communicate a vision of a future public-transport-served economy to a society that has been raised on a mix of private-car closting and second-class public transport."

MyCiTi vs Rea Vaya

When considering South Africa's two operational BRT systems, Cape Town's MyCiTi system is "better, just by a bit," than the Rea Vaya system in Johannesburg, says University of Johannesburg Transport and Supply Chain Management Department **senior lecturer Vaughan Mostert.**

Having travelled on both, he notes that the **28** MyCiTi system serves the higher-income areas in Cape Town. This means it is successful in removing cars from the road, which is one of the major aims of public transport. It is, therefore, "not just taking taxis off the road, as is the case in Johannesburg".

Mostert adds that the system also appears to have a mixed-user demography. Travelling on the second-last bus for a weekday night, just before 22:00, he notes that there were 24 people in the bus with him, of whom nine were white women, which signals a paradigm shift in terms of who is viewed as largely, and historically, using public transport in South Africa.

"We need more of that."

Mostert, however, also notes that the MyCiTi system **29** does not currently reach the poorer Khayelitsha area, which he regards as an oversight.

FAILING BRT systems nationally

When considering the effort to roll out BRT systems nationally, Mostert is less complimentary.

"The roll-out has not been successful, for **various reasons.**

30 For one, a lot of people are simply **milking the system** through consultancy fees.

And then also, these systems are **31** not properly integrated with existing public transport systems, which means they do not work properly. **Why are such a large number of the buses empty?**

"I'm sick of the argument that we cannot integrate all our public transport systems. We should have done so years ago. No proposed new system, such as a BRT system or the Gautrain, will be successful unless it is more integrated with other public transport systems."

Mostert says the need to integrate should take precedence over the criticism from select communities with a specific agenda, such as taxi organisations, or the residential associations of northern Johannesburg.

32 "If the same effort went into **fixing the existing** bus and rail services as went into BRT, Gautrain and toll roads systems, BRTs would not have been necessary. Money has simply been directed away from existing services, which are now falling apart."

Mostert also advocates the need for a similar payment method, as well as frequent arrival and departure on all subsidised public transport, which should ensure ease of travel.

33 "If a train leaves every hour, then the bus outside should leave every hour. **You can't take a train and then spend hours waiting for a bus.**"

Mostert adds that government needs to start thinking across municipal boundaries when implementing and managing systems.

34 In the end, South Africa has **"gone for high-ticket, really expensive** items, now operating sub optimally – we **have done nothing** to really fix the public transport problem in the country", he concludes.

An Affordable, Reliable System

Rea Vaya's long-term plan is to place more than 85% of Johannesburg's population within 500 m of a Rea Vaya trunk or feeder corridor, says **Johannesburg city council executive director for transport Lisa Seftel**.

Phase 1A opened in a protracted fashion in 2009 and 2010, using 143 buses. Phase 1B, linking up with Phase 1A, covering 18 km and ten stations, should start operating later this year, using 134 buses.

35 Phase 1A runs from Thokoza Park, in Soweto, to Ellis Park, in Doornfontein, and also includes routes through the CBD. **It covers 25.5 km of dedicated routes, as well as 78.5 km of feeder and complementary routes**, and has 33 stations.

"The critical impact of Rea Vaya has been the provision of affordable, quality public transport," says Seftel.

36 "Our prior mode survey in October 2010 revealed that 11% of Rea Vaya passengers were former private-car users, 63% were taxi users, 17% train users and 8% bus users," she adds.

Other positives have been the creation of 830 permanent jobs – with more jobs created than lost.

Taxi drivers who now operate the system have increased their yearly income by R21-million a year. Rea Vay Phase 1A **replaced 10% of the taxis operating between the city and Soweto**. (However, on a negative note, a bruising driver strike last year did see Rea Vaya out of action for eight weeks.)

Greenhouse-gas emissions will have been reduced by 40 000 t of carbon dioxide a year with the introduction of Phase 1B, adds Seftel.

37 Phase 1A has delivered more than 40 000 passenger trips per weekday, which is more than the current number of people using the R27-billion Gautrain system per day.

Introducing Phase 1A has cost R2.4-billion to date, with the bulk of the costs linked to the required infrastructure.

“We are starting to plan for Phase 1C, which will go down Louis Botha avenue to Alexandra and then to Sandton and vice versa,” says Seftel.

“We believe that the system has been worth it,” she adds.

Apart from the benefits already mentioned, Rea Vaya is also contributing to changing the face of Soweto.

38 “We are seeing, and hope to see, more development and densification along the corridor. Some of the economic development spin-offs may be too early to tell.”

Looking back, would the city do things differently were it able to do it all over again?

“I’m not sure we would have done it much differently,” says Seftel. “We had the opportunity to be innovative and that led to rewards. Some of the areas of innovation included setting up a special-purpose vehicle, or temporary company, while negotiations with affected operators were being finalised, raising funding from an export credit agency and negotiating a contract with previously disadvantaged operators.”

Seftel says she regards the strengths of the system to be its speed and reliability, the negotiated fee per kilometre payment to the bus operating company and the fact that no driver handles money.

The system is also disability friendly, with high levels of job creation and broad-based black economic empowerment. The Euro IV buses are also environmentally friendly.

Just the Start

Cape Town’s MyCiTi service currently has 52 buses running the 16.7 km starter service between the central city and

39 Table View, the services around the residential areas of Table View, Parklands and Blaauwberg, as well as the central city service and the airport service, says mayoral committee member for transport, roads and stormwater **Brett Herron.**

The buses travel around 9 500 km a weekday across all routes.

At a factory in Epping, Cape Town, 190 new nine-metre Optare Solo buses are being assembled from kits produced in the UK, which will serve eight new residential routes around central Cape Town.

The total expenditure to date on infrastructure, including civil and building works, buses and equipment such as fare management and control centre equipment, is R2-billion, which is about 50% of the projected infrastructure spend for Phase 1A of the MyCiTi system.

At an average 11 000 passenger trips a weekday, the younger Cape Town system currently carries fewer passengers than Rea Vaya.

Passengers load money onto a smart card before boarding the bus, and then ‘tap’ the card on a receiver, rather than pay the driver, similar to the Gautrain system

The system also features a roving team of **40** dedicated MyCiTi law-enforcement officers.

In November, eight new routes are expected to be launched around the central city, says Herron. These will travel to the central city, Woodstock, Salt River, the City Bowl suburbs and the Atlantic Seaboard suburbs, including Camps Bay, Hout Bay and ImizamoYethu.

The new routes are part of Phase 1A, which, during 2013, will also be extended to areas north of the central city, including Atlantis, the informal settlements of Dunoon and Joe Slovo Park, the industrial area of Montague Gardens and Century City. Phase 1B will include a trunk route from Dunoon southwards, and a feeder route to Salt River. An express service to Mitchells Plain and Khayelitsha is being planned for December 2013 to alleviate the burden on the congested rail system.

The second phase will provide a more extensive service to the south-eastern parts of the city, including Mitchells Plain and Khayelitsha, to destinations across the peninsula.

The third phase will include Bellville, Delft, the rest of the northern suburbs and Stellenbosch, and the fourth phase the Greater Helderberg area.

The full system is expected to take 15 to 20 years to implement, with each phase being built as funds become available, says Herron. Most of the funding will come from the **41 DoT's public transport infrastructure and systems grant**, with the balance to be funded by the city.

"The aim is to eventually build a reliable, safe and cost-effective transport network within 500 m of 75% of the homes in the city," says Herron.

The system is currently running at a loss.

MyCiTi is projected to deliver an income of R35-million in the 2011/12 financial year. The projected direct vehicle operating costs, including insurance and vehicle tracking, total R43-million. Vehicle operation overheads, including depot costs, come to R39-million, with the projected cost for managing and maintaining the stations (including revenue collection) and insurance being R55-million.

The projected cost associated with safety and security, cleaning, passenger information, municipal services, communications, marketing and landscaping is R27-million. The expenditure to date on consultants assisting with running the bus services is R11-million. (These costs are expected to reduce as permanent staff members are recruited to undertake these functions.)

"Note that, with the above operational costs, unlike the situation with the existing transport operations, the city is factoring in a much wider set of costs than what is traditionally the case for public transport," explains Herron.

"For example, with the current commercial scheduled bus services, the reported government subsidy usually excludes indirect subsidy and support, such as providing, managing and maintaining public transport interchanges and roads on which the buses (and other vehicles) travel. Therefore, making comparisons with existing transport operations would be incorrect, as the full costs of existing transport operations have not been factored in."

Herron adds that the trend of increasing car travel, spending "vast sums of money" on building new roads and dealing with the societal costs associated with pollution is unsustainable.

"The city has taken the decision to invest in public transport to ensure its long-term sustainability. The integrated rapid public transport system is also a social project that will benefit the poor and improve the quality of life of all citizens."

Capetonians make more than one-million trips every day by train, bus and minibus taxi, but these services are not safe, frequent or predictable enough, adds Herron. Mean-while, those commuting by car are facing ever-increasing delays owing to congestion.

42 "BRT costs 4 to 20 times less than light rail, and is the best-known way to efficiently transport large numbers of people as cost effectively as possible in developing countries. The system will need a subsidy, but this is expected to be similar to that given to Golden Arrow Bus Service, while MyCiTi is far more comfortable and efficient," says Herron.

43 "Every public transport system around the world is subsidized by government, and ours is no exception.

“Our cost recovery – the difference between direct vehicle operating costs and fare revenue – is 87% and is improving all the time, as passenger numbers increase,” he adds.

Still to Come:

44 Rustenburg BRT

Initial modelling for a Rustenburg BRT system has identified two main corridors, covering some 40 km along the R510 and the R565 routes, which will link the settlements of Phokeng and Kanana to the Rustenburg CBD, says Rustenburg Rapid Transport (RRT) director Marks Rapoo.

The number of passengers along this route strongly support a BRT system, he adds.

Along the 40 km stretch some 32 closed stations and dedicated bus lanes will be constructed, with the emphasis on universal accessibility and pedestrian access.

The two BRT trunk routes will also be integrated with new traditional bus transport routes to ensure that health and education services and the mining operations around the city are easily accessible, says Rapoo.

“Smaller feeder services will further ensure that public transport reaches into communities and villages throughout the municipal region.

“In Phase 1, we expect to have over 400 buses in operation, with the full operations scenario comprising up to 900 buses,” says Rapoo.

“As a result of the RRT, by the end of 2015, up to 200 000 commuters a day will have access to a world-class, efficient, safe and affordable transport network within comfortable walking distance – 1 km – from their homes and places of work.”

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The RRT project is funded through a National Treasury public transport infrastructure and systems conditional grant. Effective spend of this grant determines allocations for future years.

Construction for the first section of the RRT trunk corridor A will start this month. A three-year construction programme is planned to complete the trunk corridors, 32 stations, depots and a transport management centre.

The first phase of operations is scheduled to be rolled out late in 2015 at this stage, depending on funding.

All contracts with suppliers of the new system require that at least 25% of the contract value is delivered by Rustenburg businesses.

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Legitimate taxi drivers will be employed in the new bus operating companies, having undergone training and a licence upgrade to drive the new vehicles.

One of the interesting aspects of the RRT project is its Transport Rustenburg Incubation Programme. This is a capacity-building programme for young, unemployed local graduates with a degree in transport economics.

“It presents an opportunity to transfer skills from the professionals involved in the RRT project to these graduates. The aim is for these graduates to eventually manage the system when it comes into operation in 2015,” says Rapoo.

The RRT’s biggest challenge to date has been grappling with the various intergovernmental synergies to ensure all spatial and transport plans are aligned and complementary, he adds, but progress is being made.

Another challenge has been to change mindsets around “what an integrated rapid public transport system for Rustenburg is and why it is desperately needed in one of the fastest-growing cities in our country”.

- Several attempts at securing feedback from the City of Tshwane about its proposed BRT system proved fruitless.