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Implementing the 2007 Public Transport Strategy and Action Plan

From the President's State of the Nation Speech on 9 February 2007: 'Our programme in the social sector for this year will also include ... implementing detailed plans for passenger rail and road transport including the Bus Rapid Transit System in the Metros and recapitalisation of Metrorail ...'

From the Minister of Transport's Budget Vote Speech on 27 March 2007: 'As has been highlighted by President Mbeki in the State of the Nation Address, Bus Rapid Transit systems provide an exciting and innovative mechanism for implementing high quality public transport networks that operate on exclusive right of way and which will incorporate current bus and minibus operators into a high quality system with no loss of income or jobs.

'The department has been engaging the metropolitan cities and related provinces in this regard and BRT Phase 1 scoping plans have been completed or are under way in Johannesburg, Tshwane, Cape Town, and Nelson Mandela Metros. It is envisaged that detailed planning will be completed in September 2007 for implementation to commence, in order to meet our 2010 Phase 1 target.

'In this regard I would like to encourage current minibus, bus and rail operators in these cities to work closely with Government in creating a win-win model for implementing BRT systems, which together with the Rail Priority Corridors will serve as the primary mobility network in our large cities and will be prioritised as an attractive alternative to private car use'

THE APPROVAL OF the Public Transport Strategy and Action Plan by the Cabinet in March 2007 and the related statements of the President and Minister of Transport provide a clear mandate to the three spheres of government to fast track the implemention of Phases 1 and 2 of a high-quality integrated rapid public transport network (IRPTN) in up to 12 cities and 6 districts in the period 2007–2014.

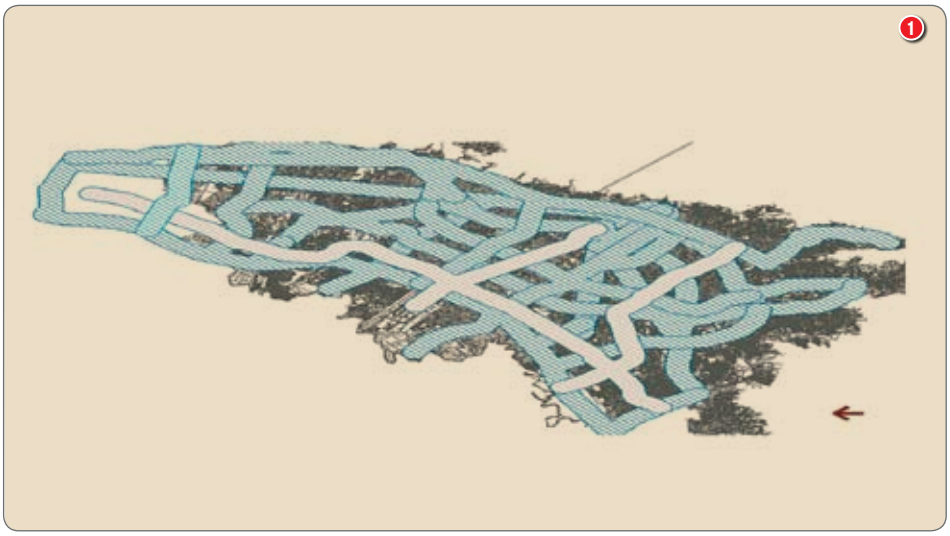
This is a mandate that the transport sector dare not fail to execute – especially as the National Household Travel Survey (NHTS, 2003) showed that 38 million people live in households with no access to a car and are hence dependent on public and non-motorised means of transport.

In addition to the challenge of basic access, the growth in car use is already undermining the sustainability of South Africa's larger cities – comparisons of the data from the 1995 October Household Survey and the 2003 NHTS reveal that public transport modes used to work grew by 10%, while car use to work grew by 20% in this period.

In short, the passenger transport sector is at a crossroads in 2007. It is time to act decisively now. The choices made in the 2007–2010 period will lock in transport usage patterns for at least the next 30 years.

With car use to work in the metropolitan cities already averaging around 45% of trips, the question is: 'Do we make a decisive trade-off and choose a more sustainable alternative now, or do we wait until we have 90% of work trips by car (like Los Angeles or Perth)?'

Every year we delay implementing high-quality public transport networks, every R500 million highway interchange we expand (as is proposed in several cities), and every additional few thousand airport or mall parking bays we build (at a cost of R50 000 per bay) mean that it will



1 *Legacy – public transport network coverage: putting 85% of the six metro cities' current 16 million inhabitants within 1 km of a public transport service network line (the width of the line represents a distance of 1 500 m)*
2 *Strategic phasing, 2007–2010*

be far more difficult and costly to retrofit a high-quality public transport, walking and cycling network on top of the car-based sprawling land use that we are continuing to encourage with our current choices.

WHY INTEGRATED RAPID PUBLIC TRANSPORT NETWORKS?

The essential feature of the Public Transport Strategy (2007–2020) is the phased extension of mode-based vehicle recapitalisation into integrated rapid public transport networks (IRPTNs). These networks comprise an integrated package of rapid rail and bus rapid transit (BRT) priority corridors – especially in major cities.

The Public Transport Strategy has two key thrusts: accelerated modal upgrading and IRPTNs.

Modal upgrading focuses on the 3–7 year transitional period and deals with improving the quality of the public transport fleet and its current operations. This includes minibus recapitalisation and Metrorail coach refurbishment. Modal upgrading, while necessary in the short term, is nevertheless insufficient in terms of achieving a high-quality service in the medium term.

Hence the need for IRPTNs, which focus on a 4–20 year period. IRPTNs aim to implement high-quality networks of car competitive public transport services that are fully integrated, have dedicated right of way and are managed and regulated by a capable transport authority.

The longer-term vision until 2020 is to develop a system that places over *85% of a metropolitan city's population within 1 km of an IRPTN trunk (road and rail) or feeder (road) corridor.*

A further goal *for the metropolitan cities by 2020 is to achieve a mode shift of 20% of car work trips to public transport networks.* In 2003 there were 1,85 million workers in metropolitan cities who used a car to get to work. A doubling of this to, say, 3,7 million in 2020 would mean attracting 750 000 (20%) of these workers to public transport networks.

By 2014, Phase 1 and 2 network implementation needs to be in place in the six metropolitan cities and at least Phase 1 implementation completed in the six smaller cities and six rural districts. Successful implementation over the Phase 1 and 2 periods (2007–2014) in 18 of South Africa's total of 53 metropolitan and district municipalities will see the improvement in public transport services for potentially over half the country's population. This is an ambitious programme for the overhaul of public transport and will require a concerted effort by the three spheres of government and all other stakeholders.

Figure 2 maps out the phasing of the implementation effort.

Phase 1 IRPTN package (bus rapid transit and rapid rail corridors)

The action plan proposes that network implementation comprise a standard basic package that can be adapted for local city and district conditions. In general, and especially for the larger cities, this will require a city-wide controlled network of rapid public transport corridors together with a fine grained feeder system of smaller buses, taxis, bicycles, pedestrian access as well as metered taxis and park and ride facilities.

IRPTNs comprise Metrorail priority corridors and bus rapid transit systems that ultimately integrate into a seamless network offering a standardised high quality of service for the user. In this regard, the priority rail corridors as

identified in the Consolidated Regional Passenger Rail Plan of 2006 will need to be continuously upgraded to meet a rapid rail standard. Similarly, the road-based component of the IRPTN will need to attain a bus rapid transit level of service.

Rapid rail and bus rapid transit service standards entail high frequencies, fast journeys on priority right of way, 16–24 hour operations, attractive station precincts and facilities, modern vehicles, secure environments and good customer service. The IRPTN will not be a conventional bus, taxi or rail service. It will be a rapid public transport service – with the entire network operating seamlessly and legibly as a single 'mode'. In this regard, the network will have a common branding and marketing image and critical image factors such as cleanliness, security and real-time user information will be actively managed to a high standard. These same principles have worked for some of the world's leading low-cost airlines and will also be progressively applied to South African public transport networks (see figure 3).

The key to a high-speed service is the development of dedicated median busways and enclosed stations with pre-board fare payment for road trunk corridors and dedicated infrastructure and priority slots for passenger rail corridors. Pre-board fare payment, level platform boarding and multiple vehicle doors significantly reduce the vehicle dwell time at a stop for both road and rail trunk corridors and hence drastically improve speeds and journey times.

Figure 4 highlights the core components of the network package as well as the critical implementation building blocks, namely a network implementation plan, transport authority control over the network, and maximum inclusion of existing operators in the network.

IMPLEMENTATION PROGRESS AND LESSONS TO DATE

Since Cabinet approval in March 2007, a DOT team has met with each of the 12 cities and related provinces that are targeted for Phase 1 and 2 implementation. The aim has been to support cities to think in terms of Phase 1 networks and to move towards network scoping plans and subsequently onto more detailed network operational plans. It is the latter that will form the detailed funding case to the National Treasury and the Public Transport Infrastructure and Systems Fund. This fund currently stands at around R9,2 billion – of which a large chunk is aimed at public transport networks.

The aim of Phase 1 networks is to invest in infrastructure and systems in order to maximise operating efficiencies and hence reduce or even eliminate operating subsidies.

In addition, the DOT has commissioned an expert review of the plans of the five cities that are considering some form of BRT system.

Some of the lessons emerging from the initial implementation effort to date are the following.

Not all cities are at the same level of preparedness – especially when considering the 30 month timeline for Phase 1 to be operational by 2010

For example Johannesburg is relatively advanced with its operational plan for Phase 1 of its Rea Vaya BRT network. This plan provides good estimates of passenger demand, fare revenue, network costs, infrastructure requirements in terms of busways, stations, terminals, depots, and fleet sizes for trunk buses, feeder buses and complementary buses that can operate in both mixed traffic and on the busway.

The cities of Tshwane and Cape Town have approved BRT scoping plans but need to speedily move to completing high-quality operational plans in 2007. Nelson Mandela is currently implementing a bus priority system that is not a full BRT system and here too they need to complete an operational plan.

Buffalo City are about to finalise a network scoping plan and will need to move to operational planning soon.

EThekwini is focusing more on its inner city services and the challenge here is to develop an operational plan for the fully restructured city-wide network – including the North South Priority Rail Corridor and its feeder systems.

Rustenburg have just developed a Phase 1 network concept that adopts priority lanes for public transport services. Mangaung have mostly proposed static, standalone infrastructure upgrades but are now considering converting the Mangaung Activity Corridor into a Phase 1 BRT system.

Mbombela have some ideas about a trunk-feeder bus network that still needs to be finalised. The same applies to Msunduzi. Polokwane and Ekurhuleni are still to be engaged with regard to converting from basic infrastructure upgrades such as ranks and interchanges to a dynamic integrated network approach.

Owing to the historical lack of public transport network implementation in South Africa, there is a default focus on infrastructure design before having done a detailed operational plan

Only Johannesburg has done a detailed network operational plan, which in turn determined the scope of the different pieces of network infrastructure – based on demand. Most of the cities have not done any detailed operational planning and are too quick to go over to infrastructure design. The key lesson is that infrastructure is determined by operations.

There is a lack of attention to user-oriented planning – with a casual approach in some cities to forcing several transfers

The key to designing good networks is to offer routing options that minimise the need to transfer. Ideally less than 50% of users should transfer and those that do should not have to transfer more than once. Forcing too many transfers tends to make public transport unattractive and uncompetitive in comparison with cars.

There is a lack of overall network planning that provides a detailed context for Phase 1

The overall network vision and scope ideally should be in place even before selecting Phase 1. In addition, there should be a careful plan at the outset as to the sequencing of future network phases.

There is a focus on separate CBD services that force a transfer

Some cities are looking to design separate CBD services, which will mean that all passengers coming into the CBD will have to transfer and pay twice. It is better to route network corridors through the CBD so that they penetrate as much as possible. There is no need to have a separate CBD service if there is a proper network in place. In addition, the CBD routing design should be done last – after having figured out how the network corridors will enter the CBD and route through it.

There is a focus on vehicle specification before having done a proper operational plan

Some cities are moving too quickly to explore options for technology such as vehicles and smartcard systems – these ideally are supposed to be derived choices that follow a detailed operational plan. It is user demand that dictates vehicle specifications and not what suits vehicle manufacturers.

There is a tendency to see the rail priority corridors as only needing refurbished coaches

The rail priority corridors have to go beyond coach upgrades to becoming the core line in an integrated network sector. This means that joint network operational planning needs to be done by the cities and SARCC-Metrorail. This should involve feeder services to the rail corridor, station precinct upgrades, etc. In addition, for the rail corridor to achieve rapid transit service levels, careful attention has to be paid to vehicle speeds, track access, station dwell times, etc.

There is a tendency to confuse basic bus lanes with a BRT system

A BRT system is not a bus system. It is rather a high-quality rail-type service that uses rubber tyres. Hence the importance of median busways, median stations, closed stations, pre-board fare payment, platform-level boarding, etc. These all combine to create a rail-type service on rubber tyres and hence go way beyond the capacities and speeds of conventional bus services. The importance of median stations in the future network is underestimated as it allows for easy platform-to-platform transfers within a closed system environment.

CONCLUSION

The race is on for South African cities to break the low-quality public transport mould and to implement Phase 1 IRPTNs by 2010. Given that we in South African have never done high-quality public transport networks before, ever, it is important to tap into the expertise of those who have worked on several of these systems in the developing country context.

While the cities have made a tentative start, the DOT and the provinces are committed to providing maximum support and funding in order for us to collectively achieve the targets for Phase 1. In this regard, the challenge is to be able to support cities to think in terms of high quality networks of services and to be able to execute in a manner that is focused on providing maximum service quality to the user.

3 *Characteristics of successful low-cost airlines that apply to integrated public transport service networks*

Service category	Product and operating features
Vehicle	Single type to minimise costs
Routes and airports	Uncongested
Fares	Low, simple, and unrestricted
Distribution	Electronic – ticketless
Service	Single-class, high-density
Frequency	High
Punctuality	Very good
Staff	High productivity, high morale
Customer service	Friendly and responsive

4 *Strategic approach, 2007–2020*

Vision: From basic commuter operations to accelerated modal upgrading and IRPTNs!

- Eighty-five percent of all residents within 1 km of rapid public transport network by 2020
- Upgraded modal fleet, facilities, stops and stations
- Extended hours of operation (16–24 hours)
- Peak frequencies 5–10 minutes; off-peak frequencies 10–30 minutes
- Full special needs and wheelchair access
- Safe and secure operations monitored by control centre
- Electronic fare integration when making transfers
- Integrated feeder services including walking/cycling and taxi networks
- Integration with metered taxi services and long-distance intercity services
- Car competitive public transport option – enables strict peak period car use management

Critical implementation building blocks

- IRPTN implementation plan
- Transport authority control over integrated network
- Maximum stake for existing bus/minibus sector in rapid public transport network

Source:
http://www.saice.org.za/downloads/monthly_publications/2007/CivilEngSept2007/#/0