



DEPARTMENT OF TRANSPORT

Public Transport Action Plan

Phase 1 (2007-2010): **Catalytic Integrated Rapid Public** **Transport Network Projects**



Vision for High Order Transport Interchange

February 2007

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PART ONE

1. INTRODUCTION

1. The Cabinet approved the Public Transport Strategy in January 2007. This Action Plan is now submitted in order to translate the Strategy into action - with a focus on implementing Phase 1: (2007-2010) Catalytic Integrated Rapid Public Transport Network Projects in 12 cities and 6 districts.
2. The Public Transport Strategy has two key thrusts: Accelerated Modal Upgrading and Integrated Rapid Public Transport Networks (IRPTNs). Modal Upgrading focuses on the 3-7 year transitional period with regard to improving the quality of the public transport fleet and its current operations. Integrated Rapid Public Transport Networks focuses on the 4-20 year period and aims 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 municipal transport department.
3. In this regard, the aim for major cities is to upgrade both commuter rail services and bus and minibus services to a Rapid Rail and a Bus Rapid Transit level of quality respectively. Ultimately these services will be fully integrated to form a single system regardless of mode.
4. The DoT's Public Transport Management Division is currently finalising 3-7 year Modal Upgrading Plans for Bus, Passenger Rail and Minibus and Metered Taxi. As far as possible, the Modal Upgrading Plans are aligned with this Action Plan's focus on Integrated Rapid Public Transport Networks and especially the initial Phase 1 catalytic packages of rapid road and rail priority corridors.
5. The development of this Action Plan has seen the DoT engage with 6 metropolitan cities and 6 secondary cities as well as the SA Rail Commuter Corporation (SARCC) - with regard to developing a Phase 1 (2007-2010) package of catalytic integrated rapid rail and road corridors. An estimated costing of these Phase 1 integrated rapid public transport networks is also included as well as a funding and institutional framework. It is envisaged that once Cabinet approval is obtained – cities and districts will embark on detailed network operational planning and costing from March to September 2007 in order to create the basis for Phase 1 implementation from 2007-2010.
6. The Action Plan engagement with the 12 cities to date has also aimed to integrate the 2010 Legacy components of the Public Transport Infrastructure and Systems Fund (PTIF). The cities' PTIF proposals were used as a basis for developing the Phase 1 catalytic package for the Public Transport Action Plan. However, cities were encouraged to go beyond their initial 2010 Legacy proposals – if required – in order to fully align with the Public Transport Strategy's thrust of moving to the initial stage of integrated rapid public transport networks that can retain existing users as well as serve as an alternative for car users.
7. The Action Plan is also integrated with the implementation aspects of the draft Rural Transport Strategy. In this regard, the current work in 3 district municipalities will be scaled up to form a strategic Phase 1 Rural public transport package and it

is intended that the Action Plan will aim for strategic full-scale implementation in at least 6 rural districts over the Phase 1 and 2 period (2007-2014).

2. PROBLEM STATEMENT

Despite the growth in car use, public transport and walking are still the predominant “lifeline” forms of mobility for the vast majority of South Africans in order to access work, schools and services. According to the National Household Travel Survey (NHTS 2003):

- 38 million citizens live in households with NO access to a car,
- 40 million citizens do not have a driver's licence,
- 14 million learners walk to school, 7 million workers and learners use public transport,
- 13.7 million citizens used public transport at least once a week & 7 million citizens used a car – (see Table 1).

	Number of people that used mode at least once in the past 7 days			
	Train	Bus	Minibus-taxi	Car
Number of users	1 083 000	2 566 000	10 080 000	7 088 000

Table 1

Current users are very unhappy with public transport service quality. For example, the National Household Travel Survey (2003) shows that: 71% of train users, 55% of taxi users and 54% of bus users are dissatisfied with the level of crowding on vehicles. In addition, 74% of bus users, 64% of taxi users and 53% of train users are unhappy with facilities at stops, ranks and stations.

In addition, the service offering for land-based long distance public transport is typically poor quality, informal and expensive. There is a large existing market of migrant workers, students, tourists and occasional travellers that warrants a far more formalised and improved quality of service. The figure below (based on the National Household Travel Survey of 2003) illustrate the potential demand for long distance transport.

Holiday travel in the RSA

Province	No. of people	No of trips per year	% using mode on last holiday trip				
			Car	Taxi	Bus	Train	Aircraft
Western Cape	562 000	1 202 000	78.7	7.3	5	2.8	5.2
Eastern Cape	496 000	817 000	28.5	40.7	23	3.6	1.7
Northern Cape	104 000	164 000	59.1	17.8	2.6	16.9	0.2
Free State	323 000	718 000	43.3	37.7	9.4	5.5	1.7
KwaZulu-Natal	424 000	827 000	43.3	40.4	8.8	2.2	5.1
North West	331 000	646 000	40.2	38.5	13.5	4.5	1.8
Gauteng	887 000	1 657 000	55.9	22.5	13.1	3.1	5.3
Mpumalanga	396 000	886 000	39.8	47.6	10.5	1.6	0.4
Limpopo	554 000	1 012 000	22.6	44.4	30.1	0.4	0.1
RSA	4 077 000	7 929 000	46.1	32.3	14.3	3.2	3.0

- <10 % of people in RSA (4 mill) make holiday trips, most by car
- Air travel insignificant at 3%
- Air travel most pronounced in provinces with Metro cities

50% of the population or over 2 million people used public transport on their last holiday trip and over 500 000 migrant workers used long distance public transport to travel home once a month. 95% of migrant workers use public transport, mostly taxis.

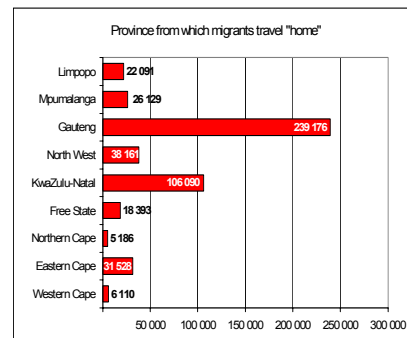
Long distance public transport has been relatively neglected in the past decade. In order to address this important transport sector and to establish some of the service capacity required for the 2010 World Cup - will require a dedicated commitment and prioritisation focus from all Departments of Transport including National, provincial and municipal levels.. The tables below illustrate the nature and patterns of historical migration.

Migrant travel

- **21 million RSA workers regard 'home' as another place to the one where they live & work >4 nights/week**
- **865 000 of them use public transport to visit 'home' monthly**
- **501 000 of these travelled to another district to go 'home' (long-distance migrant travellers).**

Thus there are over 6 million annual long distance trips made by migrants

Spatial patterns of migration



Gauteng and KZN are the 2 dominant generators of migrant labour movements

This Action Plan aims to address the problems in local and long distance public transport through implementing a Phase 1 (2007-2010) Catalytic Integrated Rapid Public Transport Network Project in up to 12 cities and 6 districts that addresses the need for high quality services that can retain current users and attract new users.

3. EXECUTIVE SUMMARY

Phase 1 (2007-2010) IRPTN interventions in up to 12 cities (including the nine 2010 host cities) and 6 districts

This Public Transport Action Plan is a high-level plan that supplements the Public Transport Strategy. It maps out a Phase 1 (2007-2010) fast track implementation programme over the next four years that targets the initial development of high quality, Integrated Rapid Public Transport Networks (IRPTNs) in 12 cities. In addition, it also proposes a Public Transport Network Package for 6 rural Districts. These are detailed in **Part Two and Annexure 1** of this Action Plan.

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 key focus of this Action Plan is on initiating implementation in a speedy and highly visible manner with maximum impact. 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

The figure below links this Action Plan to the implementation timeline of the Public Transport Strategy. This Action Plan in the main focuses on the "Catalytic Projects" component of Phase 1 (2007-2010).



The goal of the “Catalytic Projects” is to initiate implementation of Integrated Rapid Public Transport Networks in targeted municipalities, simultaneously with, the current nationwide rollout of “Accelerated Modal Recovery” interventions. The latter involves the 3-7 year modal transformation plans such as the Taxi Recapitalisation Plan, Passenger Rail Plan and the Commuter Bus Transformation Plan. These plans are briefly summarised in **Section A. 6. of Part Two** of this document.

Both the “Catalytic Projects” and the “Accelerated Modal Recovery” processes from 2007-2014 are intended to create the platform for a nationwide rollout of fully accessible Networks in cities and districts from 2014 onwards. The 6 metropolitan cities and the 6 secondary cities that are targeted for Catalytic Integrated Rapid Public Transport Network projects include all 9 of the 2010 World Cup venue cities. In this regard, the venues cities have based their Phase 1 Network concepts on maximising alignment with 2010 Legacy proposals that have been submitted to the DoT’s Public Transport Infrastructure and Systems Fund (PTIF).

Phase 1 Integrated Rapid Public Transport Network 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, especially for the larger cities, this will require 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.

This Network will prioritise public transport, walking and cycling over private car travel and will dedicate road space to these priority modes. The figure below highlights the core components of the Network package as well as the critical implementation building blocks viz. a Network Implementation Plan, Transport Authority control over the Network and Maximum inclusion of existing operators in the Network.



The overarching service vision of the 2007 to 2020 Strategy is to implement a continuous upgrading from the current basic commuter service to an upgraded modal service and then an integrated rapid public transport network. This network will strive for maximum accessibility with a target of 85% of a city’s residents within 1km of the network (either a road or rail trunk corridor or a road or non-motorised transport feeder service to a trunk corridor).

In addition, this service will have high frequencies of ± 5 minutes in the peak along trunk corridors as well as 16-24 hour operations. Full special needs and wheelchair access for ALL trunk corridor rail and road vehicles will be implemented. This will allow for specialised feeder services to the trunk corridors for special needs users in “on-demand” services.

The network will integrate with metered taxis and long distance public transport to provide maximum coverage and interconnection. Integrated fare structures will be implemented through a common electronic fare system on all modes on the network – including payment for park and ride facilities, bicycle parking etc.

Institutional framework to ensure sustainable implementation

Achieving the ambitious goal of Integrated Networks is going to require an institutional framework that facilitates implementation. In this regard the Action Plan proposes the phased establishment of transport authorities that are able to plan, manage and regulate a Network in which the transport authority is responsible for the fare revenue and operators are contracted to provide particular services in terms of the Network Plan. The Provinces will play a coordinating role in regard to planning and to ensure core capacity is available for transport authorities. There should be a programme for capacity building and phased devolution of funding to ensure that transport authorities have the capability and the resources to implement IRPTNs as envisaged in this Action Plan. In the implementation the need to establish multidisciplinary Intergovernmental Task Teams will be crucial in order to fast track and minimise bureaucratic bottlenecks and facilitate speedy decision making.

SUMMARY OF ACTION PLAN

Accelerated Recovery and Catalytic Projects actions below need to be completed by 2010:

Planning Actions

- Detailed design of Phase 1 integrated rapid public transport corridors. Includes BRT, Rapid Rail and Non-Motorised network, infrastructure, facilities and service rollout, by September 2007
- Plan fully accessible corridors for users with special needs, guidelines and specifications for accessible taxis, buses and trains by June 2007
- Completion of network design to include current bus and taxi services in an area and commence implementation of gross cost contracts with municipal control of fare income by January 2008
- Development of criteria for transport node designation and finalisation of standards and guidelines for Public Transport facilities including taxi and intermodal facilities by September 2007
- Include requirement for public transport facilities in Airports Company (ACSA) capital programme for airport development to cater for user on low cost airlines by September 2008
- Plan and implement high occupancy car lanes and ride-sharing promotion in metro cities to commence September 2007
- Plan and pilot Public Transport Intelligent Transport Systems (ITS) including electronic fare collection system that is controlled by public sector in partnership with operators by June 2008
- Plan periodic contracted public transport service in rural districts by March 2008
- Plan and implement Non motorised and public space network by December 2008 and expand the rollout of the Shova Kalula bicycle initiative and the campaign for safer cycling and walking conditions
- Improve interdepartmental coordination with regard to housing, land use and transport and fast track the identification of priority local transport corridors and the related location of medium density land use in support of transport corridors by March 2008
- Finalise policy for Learner Transport in conjunction with the Department of Education, provinces and municipalities to ensure maximum accessibility of learners through the public transport network by July 2007.

Operational Improvement Actions

- Commence implementation of BRT systems - procurement of infrastructure design of operating contracts and ITS and electronic fare system by January 2008
- Commencement of implementation of Public Transport ITS and fare collection system by March 2008 and control centre by June 2008
- Acquisition of articulated buses to operate on BRT systems by April 2009
- Implementation of infrastructure - including median bus lanes, median stations, depots and terminals by March 2008
- Completion of construction, delivery of vehicles, ITS and fare equipment and set up of control centre by March 2009. Commencement of operations (including full accessibility for special needs users) by May 2009
- IRPTN service information, maps, timetables and marketing improvements to commence in October 2007
- Accelerated rollout of fleet upgrading on all modes – Taxi Recapitalisation – 75000 vehicles scrapped by 2009/10. Rail rolling stock upgrading – 2000 coaches refurbished by 2009/10. Bus contracting 30 % of current of 7500 fleet to be fully compliant with contracting specifications for average fleet age (including contracted taxis) by 2010. Also, Phase 1 BRT systems in cities to include new specification for all bus vehicles on trunk corridors;
- All new minibus taxis, buses as well as upgraded rail coaches to be fully accessible for special needs users from January 2008 for buses and January 2008 for minibus taxis.
- Local engagement with operators and labour on their maximum participation in the Phase 1 Network projects - includes incentives and support as well as negotiations with taxi operators and bus operators to participate in gross based contracts - to be finalised March 2008

- Extended measures to improve service, hours of operations to 16 - 24 hours and improved working conditions from May 2008
- Award negotiated gross based operating contracts to taxi industry and bus operators by June 2008, this will incorporate learner transport contracts
- Criteria for nodes and guidelines for Public Transport facilities to be adopted as minimum standard by all spheres of government
- Roll-out rural contracted public transport services by July 2008;
- Fast track roll out of the Shova Kalula initiative: 1 million bicycles in partnership with stakeholders by 2010
- Implement safer cycling and walking routes, particularly around schools and residential areas - to commence in September 2007 six months after the International Non-motorised Transport Conference
- Limit car use in the peak period in major urban congested corridors from September 2007 in line with the high occupancy vehicle lanes implementation Ensure initial 10% of total public transport fleet to be fully accessible for users with special needs through all newly implemented BRT and Rapid Rail to be fully wheelchair accessible from April 2009.

Capacity Enhancement Actions

- Build local transport capacity for planning, monitoring, regulation and network management - support municipalities to develop strategic integrated network plans (including 2010 operational plans, travel demand management plans, and electronic fare collection plans) in conjunction with the TETA, Transport Centres of Development and other Institutions of Higher Learning - to commence in July 2007 Enhance capacity for Operating Licence processing (both commuter, scholar, tourist, metered taxi and charter services) and Cross Border permit processing and the related alignment with transport planning - to commence in July 2007
- Support and training for existing minibus/small bus operators and drivers in order to enhance their participation in the Phase 1 network - to commence in July 2007
- Enhance law enforcement, inspection, investigation and prosecution capacity and campaigns across all road-based modes (detailed action plan tied to the R2.2bn allocated for minibus recapitalisation regulation and enforcement) to commence in July 2007.

Promote & Deliver Basic Networks (2010-2014)

The strategic thrust of this action agenda is to incrementally enhance and expand the passenger transport system. It is the action plan for the medium term:

Planning Actions

- Finalise full network planning and roll out Phase 2 gross cost contracts which include small bus and taxi operators.

Capacity Enhancement Actions

- Consolidate operators (including minibus) into capable entities and provide business planning support to ensure they are able to provide high quality services under contract Full establishment of municipal network planning and management entity that has the necessary operational expertise to monitor operators in terms of performance contracts.

Operational Improvement Actions

- Fully upgrade Phase 2 integrated rapid public transport corridors – in all six metropolitan cities as well as in other cities and districts. To cover at least the top 50 mass corridors (Rapid Rail/BRT) in the country Roll out Public Transport Intelligent Transport Systems nationally Implement Travel Demand Management and car use reduction measures in all metropolitan areas – including roadspace reallocation measures to prioritise public transport
- Implement an IRPTN-supportive land use system in the 12 cities
- All 12 cities and 6 districts to mainstream high quality pedestrian and cycling facilities, infrastructure, public space and bicycle transport promotion – including at least 100km of high quality cycle and pedestrian paths in each area
- Completion of taxi recapitalisation and rail rolling stock refurbishment programme. BRT Phase 2 rollout in the metropolitan cities to ensure full replacement of bus fleet
- Roll out targeted public transport subsidies - that are linked to integrated rapid public transport networks

- Full implementation of periodic public transport service networks in 6 districts
- Phase 2 IRPTN corridors to be fully accessible for users with special needs.

Advance & Sustain Accessible Networks (2014-2020)

The strategic thrust is to significantly expand and transform public transport through large scale implementation. It is an agenda for action for the long-term.

Planning Actions

- Promote and coordinate employer-based car trip reduction programmes, park and ride facilities, ride sharing, public sector employee ridesharing, etc.

Capacity Enhancement Actions

- Ensure ongoing investment in innovative local public sector capabilities to plan, manage, promote, regulate, enforce, and monitor contracts, etc.

Operational Improvement Actions

- Implement fully interconnected integrated mass rapid public transport networks in all major urban centres
- Phase 3 non motorised networks to cover majority of city/district neighbourhoods
- All cities to implement aggressive car use and parking restriction measures to promote switching to public transport and non motorised transport – includes pricing measures
- All public transport facilities, vehicles and infrastructure to comprise Rapid Rail and BRT quality and include scheduled maintenanceMedium density, mixed income land use developments at major IRPTN nodes
- Promote free minimum basic mobility for all citizens regardless of ability to pay – a lifeline IRPTN mobility allowance using smartcard technology
- Phase 3 Rural Public Transport Services to expand to all 13 ISRDP districts and to include combined rural passenger and freight transport services; and
- All IRPTNS to be offer universal access for special needs users in Phase 3.

Conclusion

This Action Plan aims to create a bridge to enable the movement from Strategy to rapid Implementation. It does so in a manner that focuses on the implementation of IRPTNs in up to 12 cities as well as 6 districts. An initial assessment shows that 7 of the 12 cities have commenced with concept planning that is roughly aligned with the objective of Phase 1 IRPTNs. In addition, useful pre-implementation planning has commenced in at least the 3 districts that have been targeted as part of the Rural Transport Strategy piloting initiative.

The key challenge in 2007 is to ensure detailed implementation planning is finalised in all 18 areas – and is aligned with the Action Plan goals. This is going to require a serious effort and investment in capacity and resources among the three spheres of Government. Nevertheless, whilst ambitious this is achievable.

While the funding requirements have been based on initial estimates, it is envisaged that once this Plan is approved, a round of detailed operational planning and costing will need to occur from March to July 2007.

4. VISION OF THE PUBLIC TRANSPORT ACTION PLAN (2007-2020)

Integrated Rapid Public Transport Service Networks

Integrated rapid public transport service networks are the mobility wave of the future and are the only viable option that can ensure sustainable, equitable and uncongested mobility in livable cities and districts.

The expected peaking of global oil production within the next decade will mark the end of the cheap fossil fuel era. This, together with the increasing pressures for drastic cuts in climate change emissions – means that the mass motorisation of the South African population will not be possible, and neither is it desirable, nor equitable.

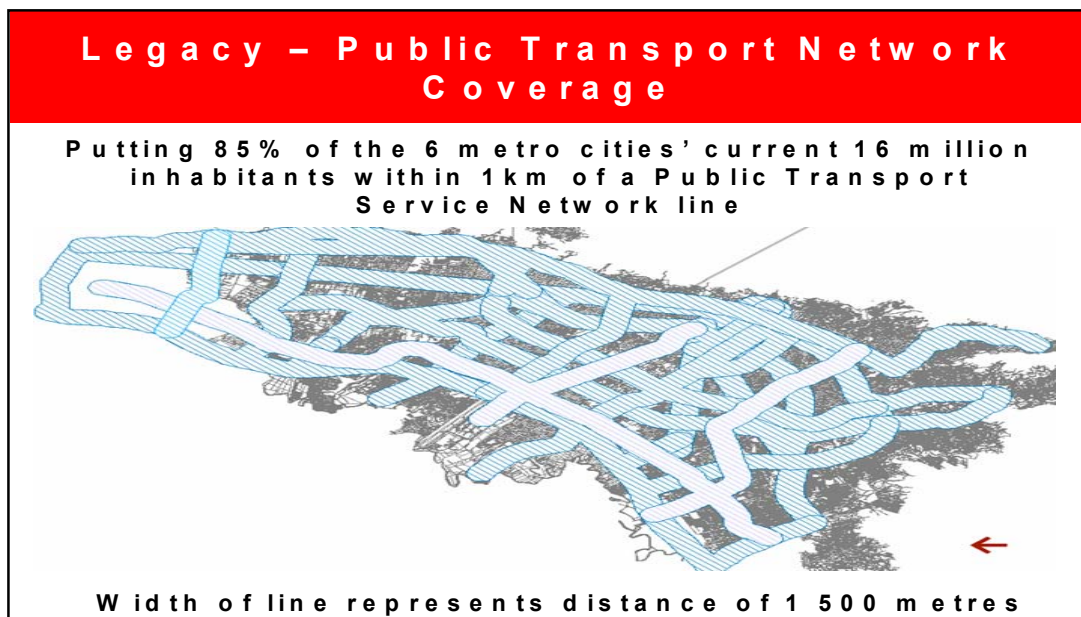
This does not mean, however, that the 70% of households without access to a car today are relegated to third class travel options. Integrated Rapid Public Transport Service Networks in the larger cities, as well as adapted versions for smaller cities and rural districts will be able to provide a mobility solution that is attractive to all – both current public transport users, as well as current car users.

Phasing in a lasting legacy

The legacy the Public Transport Strategy and this Action Plan aim to achieve is the phased but accelerated implementation of Integrated Rapid Public Transport Service Networks in metropolitan cities, smaller cities and rural districts. This phased implementation of Integrated Rapid Public Transport Networks will aim to have operating systems in place in 12 cities and at least 6 rural districts by 2014.

The longer-term vision until 2020 is to develop a system that places over **85 percent of a metropolitan city's population within 1km of an Integrated Rapid Public Transport Network 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 1.85m workers in metropolitan cities who used a car to work. Assuming a doubling of this to 3.7m 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 6 metropolitan cities and at least Phase 1 implementation completed in the 6 smaller cities and 6 rural districts. This will cover 18 of the 53 metropolitan cities and districts in South Africa and will provide a rich implementation experience before embarking on a larger, nation-wide rollout from 2014 onwards.

Phased Strategy 2007-2010-2014-2020

To translate the vision into an Action Plan the strategy proposes 3 Phases:

- **Accelerated Recovery and Catalytic Projects** (2007-2010)
- **Promote and Deliver Basic Networks** (2010-2014)

- **Advance and Sustain Accessible Networks**

(2014-2020)



The figure above summarises the 3 phases.

Overarching Strategic Approach:

The 3 phases are guided by a firm commitment to the following principles:

- A phased implementation of a SINGLE, user-responsive, publicly planned and controlled system, that integrates routes into a multi-modal mass rapid public transport network, and provides maximum accessibility and coverage in a city or district for ALL citizens, both in the townships and suburbs as well as rural districts.
- This integrated network will provide extended hours of operation (16-24 hours a day) and will strive for maximum accessibility for users with special needs – especially on the high volume rail and road corridors and related stop/station infrastructure. The economic development opportunities that will be created by extended hours of operation must be fully recognised and taken advantage of by other sectors such as business and specifically the retail sector. More importantly meeting the needs of all shift workers in the retail, entertainment, health, education, construction, security and hospitality sectors through the provision of 16-24 hours service, public transport will have unprecedented improvements on workers conditions and unlock economic growth potential including job creation.
- This action plan makes an explicit commitment to further the empowerment of workers, women, users, people with special needs, historically disadvantaged people and small business. In line with the Economic Cluster priorities, this will ensure much required intervention in the second economy and reduce transport cost for the majority of workers. More importantly this action plan will ensure maximum empowerment of public transport workers and operators through the massive network expansion and economic development opportunities this will present. This will be done through: improving working conditions and providing

ongoing training as well as maximising the opportunities for entities that are women-owned, black-owned, special needs-owned and also small business.

PART TWO: NATIONAL PUBLIC TRANSPORT ACTION PLAN

A. TRANSLATING THE STRATEGY INTO ACTION: PHASE 1 (2007-2010)

5. OVERVIEW OF PHASE 1 (2007-2010): CATALYTIC INTEGRATED RAPID PUBLIC TRANSPORT NETWORKS

Integrated Rapid Public Transport Networks

Integrated Rapid Public Transport Service Networks (IRPTNs) aim to radically transform public transport service delivery from the current operator-oriented, low quality system for captive users - to a user-friendly, high quality system for both public transport users and for current car users.

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 below).

Characteristics of successful low cost airlines that apply to Integrated Public Transport Service Networks	
<u>Service Category</u>	<u>Product & operating features</u>
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

Achieving Rapid Rail and BRT standards will require a concerted effort over three phases with Phase 1 running from 2007-2010. The key objective of Phase 1 is to ensure the initiation of tangible IRTPN projects in up to 12 cities and 6 districts. The remainder of this section highlights the key actions required to achieve this Phase 1 target by 2010. More detail on particular aspects follows in later sections.

Key Action Steps required for Phase 1 IRPTN Implementation

High Quality Network

To achieve the 2020 goal to:

- Place 85% of residents of the large cities within 1km walking distance of the IRPTN;
- Link major origins and destinations (including airports, hospitals, recreational facilities, etc);

- **Reduce journey times to a level that is car-competitive (under 60 minutes for door-door commuter travel time);**
- **Implement 16-24 hour services through attaining peak frequencies for priority trunk road and rail corridors at every 5 minutes, off peak frequencies every 10-30 minutes and hourly late night services.**

The Phase 1 target is to implement the Rail Priority A and B Corridors (in applicable cities) as well as at least two high volume BRT corridors in each of the major cities. Both Rail and BRT systems will be served by an integrated feeder system of taxis and smaller buses as well as metered taxis, and pedestrian and bicycle access.

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.

This Phase 1 network implementation will entail:

- Transport authorities finalising high quality network operational plans that identify BRT corridors to complement the Rail Priority Corridors – by August 2007;
- BRT Phase 1 rollout in cities commences in October 2007 to January 2010 - estimated at R13bn in capital investment for up to 12 cities.
- Incorporate current subsidised bus services and include minibus operators and labour into the IRPTN – detailed city-industry negotiation and business planning process completed by June 2008;
- The Network should create new jobs in security, customer service, double driver shifts fare collection, maintenance etc. Common conditions of service and continuous worker training will enable a worker-friendly environment. The DoT will convene a task team comprising the Transport Education and Training Authority, Department of Public Service and Administration and transport authorities, etc. to assess the skills and staffing requirements that will be required in the transport sector to implement IRPTNs. A detailed skills plan for each transport authority will be finalised by March 2008.
- Improved rail infrastructure and signalling - R5.4 bn will be spent over MTEF;
- Upgraded rail rolling stock – 2000 coaches refurbished by 2010;
- Accelerated rollout of Taxi Recapitalisation – 75 000 vehicles planned to be scrapped by 2009/10;
- Rail and Road Network vehicles will be upgraded to modern standards (interior space, lighting, heating/cooling, safety systems, wheelchair fastening systems, bicycle carriers, etc.) Minimum specifications will be set to meet the above and will be phased in from 2008. From 2009 all new buses, taxis and will comply with safety and special needs access standards.
- The network will consist of a core of road and rail trunk corridors with feeder systems that will be integrated. The aim is to achieve maximal physical and fare integration in the core. Physical integration implies a well designed transfer system with high quality public space and pedestrian and wheelchair friendly movement between corridors and/or modes. Fare integration means a common fare structure that encourages free transfers within the Network. This will extend the range of destinations available to a user for a single, affordable Network fare – the user will not have to pay twice when transferring.

Public Transport Network supportive land use

High quality public transport, walking and cycling networks have the potential to transform the quality of the public spaces in a city and can serve as a basis for anchoring medium density land use development. This is especially the case where

trunk road and rail lines intersect at sites that have the potential to become major multi-purpose and mixed use nodes and destinations in their own right.

Implementation of the IRPTN will enable municipalities to be far more proactive with regard to channelling and regulating land use in a manner that integrates with the Network. The Phase 1 action steps in this regard include:

- The DoT will actively co-ordinate with the Departments of Housing, Land Affairs and Provincial and Local Government with regard to the implementation of IRPTNs. A similar process will be facilitated at the provincial and municipal spheres. This will commence in April 2007.
- Municipal transport authorities, led by the DoT will be required to support the IRPTN catalytic initiatives in respect of appropriate land use policies and strategies. The NLTTA (Section 29 (2)) binds all parties in respect of land use changes in conflict with the provisions of an ITP. Therefore, the IRPTN plans at city level must integrate transport and development planning functions by April 2008 in order to practically address:
 - land use and density zoning changes on land within 500 metres (etc.) of the busway/railway - including floor space ratio and the residential and commercial mix;
 - conditions for rezoning applications; and
 - developer contributions for increase of bulk or enhanced zoning;
- Municipalities must review and amend their ITPs by February 2008 to include parking policies and standards to introduce concepts such as maximum parking spaces per unit of area (instead of minimum spaces), levies on parking spaces within the stipulated 500 metre (etc.) zone of the IRPTN and other policies to promote the IRPTN over private car use;
- Municipalities must plan to support the IRPTN with public spaces and facilities (both in the street reserve and on adjacent land) These plans will be incorporated into the overall IRPTN plan by June 2008 will include, but are not limited to:
 - pedestrian and cycle facilities
 - pedestrian access tracks;
 - rest areas;
 - landscaping;
 - information kiosks; and
 - toilets and other amenities including ticket or information booths.

Security

All IRPTN Phase 1 systems (Rapid Rail and BRT) will incorporate high levels of security at stations, on vehicles as well as at Network nodes and precincts. This will include network-wide deployment of security personnel, police officers, CCTV cameras, lighting, environmental design to minimise security risks, etc. The firm goal is to ensure that the Phase 1 systems are fully secure for all users:

The Phase 1 action steps will include:

- The municipal transport authority will develop a detailed security plan as part of the IRPTN Phase 1 rollout in conjunction with the SAPS . The DoT will co-ordinate municipal transport authorities, SAPS and SARCC/Metrorail in this regard and the security plan should be completed by June 2008;
- The current rollout of SAPS Railway Police targets the deployment of 4500 officers by 2008 and the IRPTN plans will form the basis for extending this to both the Rail and BRT components of the network.
- A minimum of one security guard per BRT station will be required and this will need to be costed in the detailed plans.

- Each municipal IRPTN will have security contact points that are easily accessible. In addition each IRPTN will require a control centre that will be linked to each vehicle, station, terminal and contact point and will be able to respond to any incident.

Public Transport Intelligent Transport Systems and Electronic Fare Payment

The Network will be managed and controlled by the municipal transport authority through Public Transport Intelligent Transport Systems (ITS) – including Global Positioning System (GPS) tracking of all trunk and feeder road vehicles - linked in real time to a central Control Centre. Information displays at road and rail stations in real time will reduce “waiting stress” impacts on users. Closed Circuit cameras at station precincts will serve as one of the security measures. Traffic signal pre-emption and priority for public transport vehicles will be implemented. An integrated electronic fare payment system using a smartcard will enable integrated fare structures, free transfers and targeted user-based subsidies.

The Phase 1 action steps are highlighted below:

An ITS plan will form a component of the detailed IRPTN Phase 1 design and will be required by October 2007. An indication of time duration is provided, although various items can run in parallel once the Concept of Operations is in place.

Action	Comment	Time duration (approx.)
1. Develop a framework for IRPTN	Major PT routes and corridors should be identified	Sept 07
2. Develop a Concept of Operations (CoO)	Should reflect regional needs and represent a clear description of ITS systems to be implemented	Jan 08
3. Implement communications backbone	Develop regional communications network to support ITS system implementation. Could be city-wide fibre optic network supported by wireless	Mar 08
4. Design & implement ITS Systems	Design & implement the various ITS systems. The design and implementation can be phased, dependant on budget and cash-flow requirements. Consider design and implementation of pilot initially, ideally along major PT route.	Mar 08- Jun 08
5. Establish PT Operational Centres	Identify appropriate location for facility; control centre refurbishment and/or construction of new facility; system integration (including software and hardware requirements)	May 09
6. Operations and Maintenance Plan	Develop an Operations and Maintenance plan in anticipation of requirements when the system is fully functional. Ensure human resources are available and trained at time of commissioning.	Mar 08

- In addition, the DoT will finalise Electronic Fare Payment guidelines and regulations by July 2007. Following this, the cities' IRPTN plans will need to:
- Develop an implementation plan for EFP systems on the IRPTN - including Rail and BRT fare payment. – by April 2008;
- Move towards a “gross” contract system for cities as this simplifies fare payment rules, as a first step towards integrated fare payment.
- Plan for an integrated fare structure between all modes to in the medium term.
-

IRPTN integration with Metered Taxis and Long distance public transport services

Metered taxis play a limited role in South African cities at present. In parallel with the rollout of the Network, metered taxis will be regulated and contracted to provide an additional low volume public transport service for choice users, as well as an alternative to single occupant car use and a service for off-peak periods.

The following Phase 1 actions steps will be undertaken:

- A regulatory review will be completed by March 2008 in order to facilitate an increase in operational footprint and to expand services outside public transport operational hours (e.g. for shift workers at night);
- This will require that the numbers of metered taxis will need to increase and the engagement with Operating Licence Boards will aim to address blockages to growing this sector by July 2007;
- Minimum safety and operational requirement and colour coding of metered taxis will be introduced so that they are easily identifiable by users. These measures will be finalised by March 2008.
- The DoT will co-ordinate the provinces and the Operating Licence Boards with regard to developing a guideline on tariffs for the different types of metered taxi services by March 2008.
- IRPTN operational plans of the transport authority will address fare integration between public transport and metered taxis through the same electronic payment instrument for both.

Long Distance Public Transport

In line with the rollout of Integrated Rapid Public Transport Service Networks, there is a need to not only link the Network to major long distance stations and terminals but also to implement a phased strategy of upgrading and expanding long distance coach and rail services. By 2020 a planned long distance integrated network should be phased in – along similar lines as the local Network – this will include publicly planned routes, service quality and schedules; public management of facilities, stations and terminals; and contracting current informal operators to provide a higher quality, scheduled service.

Proposed action steps over the Phase 1 period include:

- Finalise business plan for Shosholozha Meyl long distance rail service by September 2007 including an investment plan to increase capacity, expand services and attract new users;
- Finalise strategic demand and supply profiling of the major long distance road corridors by June 2008 in order to develop a data-driven basis on which to plan infrastructure, facilities and operations;
- By July 2007 review and streamline the licensing and regulatory issues that affect long distance operations – especially with the likely increased demand in coach travel due to tourism and the 2010 World Cup;
- Improved long distance road and rail terminals that are integrated with the IRPTNS in each city and district – implementation by 2009.

To achieve these action steps, the DoT implementation team will develop a specialised focus on long distance public transport and will actively co-ordinate the provinces, municipalities, Operating Licence Boards, Cross Border Road Transport Authority, Road Traffic Management Corporation, tourism stakeholders as well as mini-bus, bus and coach operators.

Car use and parking demand management

The IRPTN rollout initiates a car competitive mobility alternative and hence enables the phasing in of stricter penalties and incentives to get car users to switch to the Network – especially for peak period trips. By 2020 a range of demand management measures will be implemented including: peak period road pricing, citywide parking levies and restrictions, possible tax incentives to employers and individuals to switch to the Network, local options with regard to staggering working and schools hours, etc.

The Action Plan calls for the following steps:

- DoT is to finalise and release its Travel Demand Management Strategy by September 2007.

- Specialised support is to be provided to especially metropolitan cities with regard to ensuring that their IRPTNs are designed to be car competitive and also to develop local plans to phase in car use and parking disincentives.
- During Phase 1, the DoT will actively co-ordinate roads authorities and transport departments in the three spheres of Government with regard to implementing integrated alternatives (include both infrastructure and operations) to suburban road expansion.
- The work done in amending the Gauteng Freeway Scheme proposal to include provision for public transport and high occupancy vehicle (HOV) priority will be enhanced by October 2007 to ensure integration with the Tshwane and Johannesburg IRPTN plans, and also to ensure that solutions include operational elements such as park and ride facilities, marketing, and high quality public transport services.
- DoT to promote a flagship catalytic IRPTN initiative that focuses on the full scale implementation of a rapid dedicated public transport alternative to car commuting. Possibilities include the N1 in Cape Town and the N1-M1 in Gauteng between Tshwane and Johannesburg. Scoping to be completed by March 2008.
- Regional planning should integrate the IRPTN and the freeway network and emphasis should be placed on the interfaces where these networks intersect
- HOV lane implementation in the 6 metropolitan cities should be encouraged, but with due care to ensure adequate traffic law enforcement is in place to ensure sustainable implementation. Scoping plans to be completed by March 2008.
- DoT to establish a specialised unit by September 2008 ensure that car use demand management is actively implemented by roads and transport authorities.

Conclusion – strategic shift to municipal controlled integrated networks

Achieving the legacy articulated in detail above will require a municipality acting as a network authority that procures the required public transport infrastructure - including dedicated road space, dignified public space, good pedestrian and bicycle access, good park and ride facilities for car users, and high quality stations, stops, interchanges, terminals and depots. High quality vehicles are specified in the operating contracts and are tailored to meet a corridor's particular service requirements.

The public authority contracts an independent electronic fare collection service and receives the fare revenue and pays operators per vehicle kilometer. Operators do NOT compete for passengers on the road but rather on meeting performance quality standards and by supplying contracted vehicle kilometers. The public authority carries the final demand risk and can re-deploy operators at no revenue risk to the latter.

Minibus operators and employees are full participants in providing service in the corridor network - but only in terms of the integrated plan. The network is monitored and controlled through Public Transport Information Technology such as smartcards, vehicle tracking linked to a control centre, Public Transport priority at traffic signals, CCTV surveillance at facilities etc. The focus of these upgraded networks is on the USER. Safety, security, cleanliness, reliability, comfort and image are addressed. To add user convenience, simple fare structures are developed that allow users to take maximum advantage of the network, through free transfers.

The critical success factor is building the required network management capabilities in the municipal sphere.

6. LINKAGE WITH ACCELERATED MODAL RECOVERY AND UPGRADING PLANS
– Transition from Modal services to Multi-modal integrated networks

The goal of the “Catalytic Projects” is to initiate implementation of Integrated Rapid Public Transport Networks in targeted municipalities - simultaneously with the current nationwide rollout of “Accelerated Modal Recovery” interventions. The latter involves the 3-7 year modal transformation plans such as the Taxi Recapitalisation Plan, Passenger Rail Plan and the Commuter Bus Transformation Plan. These plans are briefly summarised in this section. The figure below outlines the linkages between the Modal Recovery Plans and the Catalytic IRPTN projects.

<i>Strategic Alignment 2007-2020:</i>			
Implications of Integrated Rapid PT Network approach for current Rail Plan, Bus Tendering and Taxi Recap roll out processes			
	Rail Plan	Bus Tendering	Taxi Recap
<i>Phase 1 / 2 rollout of Rapid PT Networks in up to 12 cities and 6 districts 2007-2014</i>	•Priority Rail Corridors to be upgraded to Rapid Network quality level and full Fare & Physical integration with Road-based Trunk/Feeder services	•Develop Integrated Rapid PT network plan by June 2007 and link upcoming round of tendering to Rapid Network Trunk/Feeder gross cost contracts (fare revenue retained by municipality)	•Local Taxi Industry-Municipality negotiations (based on local Rapid PT Network Plan) to determine local options for full Taxi Industry participation in Rapid PT Trunk/Feeder services
<i>Areas without Rapid PT Network</i>	•Detailed Rail Plan study to assess service viability & modal/service options	•Implement tendering with strengthened public sector planning and monitoring role, & taxi & small bus stake – option of either gross or net contract regime	•Fast track Recap rollout and improve enforcement and upgrade driver working conditions

Passenger Rail Plan Summary

In December 2006, the Cabinet approved a consolidated regional Rail Plan report, supported by detailed regional, business and operational plans for each of the regions. These regional rail plans were developed in consultation with Provinces and Metropolitan Authorities taking into account strategies set out in the metropolitan authorities’ Integrated Transport Plans.

The consolidated regional Rail Plans quantifies the specific infrastructure and rolling stock interventions. In terms of commuter rail infrastructure, a short term (3-5 years) funding requirement of R5.4 Billion has been identified to fund specific infrastructure interventions on priority commuter rail corridors and relates to interventions required over and above the normal capital (minor projects and essential works projects), asset replacement and station maintenance budgets that are in place. These interventions represent those operational and infrastructural improvements on the priority corridors that would allow for:

- commuter rail service levels to be improved through increased service frequencies (and hence increased rail capacities);
- bottlenecks in the network to be removed;
- reliability levels to be increased, and
- passenger access to and within stations to be improved.

R2.6 Billion p/a is required for rolling stock improvement for priority commuter rail corridors Phase 1. This rolling stock requirement was determined based on the current peak hour carriage and commuter train over loading (crush loads) on the priority

corridors, reviewing the actually useable train sets for each region, i.e. reflecting the number of train sets that are not in service and the additional rolling stock requirements for the introduction of improved levels of service on priority corridors.

Infrastructure

A total of R5.4 Billion is required over the short term to improve and enhance the regional rail commuter network/infrastructure (Category A and B corridors, with safety critical or network integrity interventions only on C corridors).

Rolling Stock

The Rail Plan rolling stock requirements delivered various options for upgrade over the short to medium term, with unavoidable re-capitalisation requirements over the medium to long term. An additional 174 train sets, compared to the current available fleet in service, would be required to offer reasonable quality services on A and B corridors. The unavoidable re-capitalisation requirement over the medium to long term for 50% of the required fleet (2600 coaches), translates into an estimated R26 Billion.

The following table provides an indication of the average maximum current crush loads on the train services on the Category A Priority Corridors during the weekday AM peak hours. The table also shows the preferred safe (or normal) loading conditions, as well as the preferred passenger loading for the Category A lines in each of the regions. The crush loads represent the crush loads on the busiest sections of the Category A corridors. The table shows that the crush loads vary significantly across the regions, from an estimated 10% crush loading factors in the Western Cape to 160% in the Wits region.

Region	Tshwane	Wits	Ethekwini	Western Cape	Eastern Cape
Crush Loading:					
Per Trailer	210	410 ¹	300 ²	180 ³	N/a
Per 12 car train	2,310	4,920	3,600	2,160	N/a
Safe (Normal) Loading:					
Per Trailer	160	160	250 ²	160	160
Per 12 car train	1,860	1,860	3,000	1,920	1,920
Preferred Loading for Category A Corridor:					
Per Trailer	160	130	160	160	160
Per 12 car train	1,860	1,560	1,920	1,920	1,920

¹ Estimated based on 160% crush loading factor on a safe loading value of 80% of 160 passengers per trailer

² Information provided for Metro Category trailers in Ethekwini

³ Estimated based on average of 110% crush load and 100% of normal load

A review of the officially allocated and actually useable train sets for each region, i.e. reflecting the number of train sets that are not in service and the additional rolling stock requirements for the introduction of improved levels of service on the A and B Priority Corridors showed the following:

- Approximately 29% of the allocated fleet is currently out of service, i.e. 71 sets out of a total of 343.

- The total fleet requirement for 10-minute headways is 21% more than the currently useable fleet total (i.e. 330 sets versus 272, if it is assumed that an additional 10% of the fleet size is provided for spare sets).
- The total fleet requirement for 5-minute headways is significantly more than even the full-allocated fleet (446 versus 343). This represents an additional 138 train sets, or a 30% increase in the number of sets currently available. This increase is of course on top of the return to full serviceability of all currently sidelined sets.

The tables below provide details on the Corridor prioritisation, the infrastructure needs for the Priority A corridors and the rolling stock needs for the Priority A and B corridors.

SARCC/Metrorail Corridor Indexation by A/B/C/D Category				
Rail Plan Priority Corridors (Existing rail corridors)	Region	Regional Category	Nat Indexed Rating	Nat Indexed Category
Umlazi – CBD - Kwa Mashu (incl Isipingo)	KZN	A	91 - 100	A
Berlin in- East London	EC	A	91 - 100	A
JHB Core Central Network(New Canada - George Goch - Germiston)	WITS	A	91 - 100	A
Soweto(Naledi - New Canada)	WITS	A	91 - 100	A
Soweto(Midway - New Canada - Kwaggastroom (Sebokeng))	WITS	A	91 - 100	A
Kraaifontein - Belville - CBD(via Thornton and Monte Vista)	WC	A	91 - 100	A
Daveyton – Germiston	WITS	B+	91 - 100	A
Olifantsfontein - Tembisa - Germiston	WITS	A	91 - 100	A
Mabopane - Pretoria North – CBD	TSWH	A	91 - 100	A
Mamelodi Gardens (Pienaarspoort) – CBD	TSWH	A	91 - 100	A
Simonstown - CBD (Incl Cape Flats(Retreat))	WC	A	91 - 100	A
Khayelitsha - Cape Town (Incl Kapteinsklip - Phillipi)	WC	A	91 - 100	A
Olifantsfontein - Centurion - CBD(Pretoria)	TSWH	B	72 - 90	B
Kwesine/Katlehong – Germiston	WITS	B+	72 - 90	B
Springs – Dunswart	WITS	B+	72 - 90	B
Moot link (Hercules - Koedoespoort)	TSWH	B	72 - 90	B
Saulsville/Atteridgeville – CBD	TSWH	B	72 - 90	B
Strand – Belville – CBD	WC	B	72 - 90	B
Randfontein - Langlaagte	WITS	B-	72 - 90	B
Vereeniging – Kwaggastroom	WITS	C	72 - 90	B
Belville - Sarepta - Langa - CBD (Incl Pinelands link)	WC	B	72 - 90	B
De Wildt - Wintersnest - Pretoria North	TSWH	C	39 - 71	C
Vereeniging - Kliprivier – Germiston	WITS	D	39 - 71	C
Worcester - Wellington Kraaifontein	WC	B	39 - 71	C
Uitenhage - CBD	EC	B	39 - 71	C
Crossmoor – Mobeni	KZN	B	39 - 71	C
Isipingo – Kelso	KZN	B	39 - 71	C
Muldersvlei - Eerste Rivier (via Stellenbosch)	WC	C	39 - 71	C
Alberton – Germiston	WITS	D	39 - 71	C
Duff's Road – Stanger	KZN	B	39 - 71	C
Malmesbury – Kraaifontein	WC	C	39 - 71	C
Germiston - India - Kaserne West	WITS	D	39 - 71	C
Cato Ridge – Rossburg	KZN	C	39 - 71	C

Pine Town – Rossburgh	KZN	C	39 - 71	C
Nigel – Springs	WITS	D	39 - 71	C
Oberholzer – Midway	WITS	D	39 - 71	C

The Regional Category column reflects the regional consultative evaluation rating for the respective rail corridors.

The original definitions for the categorisation of corridors have been as follows:

A = Ideal corridor for rail with a quantum improvement in service levels.

B = Important role for rail with service levels reinstated to 2000 service levels.

C = Role of rail uncertain and needs further analysis.

D = No role for rail, alternatives to be considered.

A national review of the corridors required national indexing to equally compare corridors on a national basis.

The National Indexed Category reflects the national indexed categories, with the following definitions:

A = Ideal corridor for rail with a quantum improvement in service levels.

B = Important role for rail with service levels reinstated to 2000 service levels.

C = For further analysis and consultation.(Categories C and D collapsed into a single category.)

No disparities between the regionally and national indexed identified A and B corridors, and can be implemented.

INFRASTRUCTURE INTERVENTION COST SUMMARY FOR CATEGORY 'A' CORRIDORS

Region	Short term (R m)	Main items	Med' term (Rm)	Main items	Long term (Rm)	Main items
Tshwane	56	Pretoria North station upgrade Traction transformers	126	Staging yard at Pretoria North Mamelodi track doubling	105	New platforms at stations on Pretoria North to Pretoria Central section
Wits	2,202	Signalling upgrades Electrical upgrade	599	Many station upgrades	2,000	Quadrupling of track in busiest corridors
Kwa Zulu Natal	786	Reunion station upgrade Signal upgrade – Evoca	151	New line across Umgeni bridge General signalling upgrade	0	
Western Cape	740	Supporting infrastructure spend	90	Removing capacity bottlenecks	143	Investigate new links and stations
Eastern Cape	218	Motherwell link	60	Infrastructure improvements	0	
TOTAL	4,002		1,026		2,248	

ROLLING STOCK NEEDS FOR PRIORITY CORRIDORS

Region	Allocated Regional Fleet	Currently out of service	Currently usable fleet	Train sets needed to offer priority corridor service levels ¹ on A and B corridors (keeping existing service levels elsewhere)			
				10 minute headways		5 min headways	
				Additional sets needed on A & B corridors	Total fleet requirement	Additional sets needed on A & B corridors	Total fleet requirement
Tshwane	54	10	44	16	60	45	89
Wits^{2,3}	129	45	84	-	<84	50	134
eThekwinl	68	23	45	13	58	19	64
W Cape^{2,4}	90	3	87	-	<87	20	107
NMMM⁵	5	-	5	'-1'	4	-	-
BCM⁶	7	-	7	-	7	4	11
Sub-totals	343	71	272	28	300	138	405
Spare sets (10% of fleet)					30		41
TOTALS					330		446

1. Improved service frequencies + reduction in overcrowding to safe levels (i.e. = 100%) max loading
2. Wits and W Cape currently offer 10 minute or lower headways, hence current operational fleet is enough for this level
3. The submitted data from Wits region had to be adjusted to the same loading levels as assumed in other regions, i.e. 100%
4. Based on proposed W Cape service levels charter
5. NMMM seeks only a 20 minute service on the Uitenhage-PE corridor and this requires fewer trainsets, 4, than there are currently available
6. BCM's 'A' corridor service specification is for 7.5 minute headways. Note: NMMM and BCM run DMUs not electric trainsets

A FRAMEWORK FOR TRANSFORMING THE COMMUTER BUS REGIME INTO INTEGRATED ROAD-BASED PUBLIC TRANSPORT SYSTEMS

SUMMARY

The purpose of this section is to make a strategic case for the transformation of the present subsidised commuter bus contracts regime into a more sustainable system of public funding for integrated road-based public transport networks.

The main recommendation is that bus contracts serving the four main metropolitan areas (initially) should be transferred as soon as feasible to the metropolitan transport authorities. The contracts should be entered into on a 'gross' basis, giving control of both the revenue and the route/network planning to the authority concerned. New contracts would require operators to engage fully with the metropolitan authorities' plans for integration of all road-based public transport into a common network.

It is proposed that non-metropolitan contracts remain 'nett' based, with the contractor collecting revenue, but with subsidisation changing from being passenger-based to distance-based. The longer term objective for all these services is that they should either prepare for transformation into future urban integrated transport systems or, by negotiation with relevant sectoral authorities, be replaced with more appropriate arrangements for the economic support of the areas that they currently serve.

THE STRATEGIC CASE FOR THE TRANSFORMATION OF THE SUBSIDISED COMMUTER BUS REGIME – “FROM SEGREGATION TO INTEGRATION”

The strategic case for transformation is based on the need to replace the virtually unchanged system of subsidised bus transport of people from segregated, often distant, residential areas to their places of employment - with a programme of investment by Government in road-based metropolitan public transport arrangements that support current trends towards urban densification and integration.

This, is consistent with public transport integration proposals that were spelt out ten years ago in the Department's 1996 Transport White Paper. This emphasised that the role of public transport in the new South Africa should be increasingly to support more efficient, integrated and democratic, patterns of urban settlement in contrast to the subsidised segregation of the previous regime. Similar, though operationally more specific, principles are set out in the 2006 National Land Transport Strategic Framework (NLTSF).

Clear acknowledgement that the subsidised commuter bus services are still supporting untransformed land use and settlement patterns is require. Without this acknowledgement there will be a tendency to believe that technical adjustments to contracts is all that is needed to change things, yet fundamental structural spatial planning interventions are required.

More importantly, stronger commitment within metropolitan transport authorities to achieving fully integrated road-based public transport systems. Without such a clear view of where the system is currently, and where we want it to be in the future.

What most subsidised bus services have in common, whether shorter distance metropolitan services such as Soweto to the Johannesburg CBD, or long distance services from Kwa Ndebele to the Pretoria CBD, is that they facilitate the maintenance of status quo in land use patterns and the imperative supported by demographic analysis showing that migration to urban areas is the underlying trend.

These trends need to be accommodated in a much wider range of policies than simply a dated, subsidised commuter bus service. It is also a problem of both urban and rural development strategy encompassing housing, economic development and social service provision.

COSTS AND BENEFITS OF REPLACING SEGREGATION-BASED COMMUTER SERVICES WITH INTEGRATED ROAD-BASED PUBLIC TRANSPORT NETWORKS

At present Interim Contracts have all expired and are being renewed on a month-by-month basis. Most Tendered Contracts are no longer compliant in terms of vehicle standards and require re-tendering. At one level there is a need to simply resolve these anomalies and cost the implications thereof. But this could perpetuate the situation of contracts that no longer serve a rational purpose. Most contracts bear very little relation to either current patterns of transport demand or to the aspirations of metropolitan or other transport authorities for integration amongst transport modes.

What is needed is a clear basis for moving away from the present system to one that secures agreed policy objectives. The cost implications of integrating the subsidised commuter bus services with the minibus-taxi industry and, where relevant, other commercial bus services and municipally operated bus services need to be calculated. These costs should then be compared to the cost of simply rationalising present contract arrangements in order to see what the incremental cost of securing integration is. This new approach to costing is based primarily on the proposed absorption of many of the subsidised commuter bus services into integrated road-based public transport systems within the major metropolitan areas of the country. The case also involves provision for all current service providers to become full participants in these integrated metropolitan road-based public transport networks. This includes the minibus-taxi industry as well as other municipal or commercial operators.

The cost to the state will be significantly higher than for the present subsidisation of individual commuter bus services. But, if implemented in conjunction with separate proposals for enhanced capital spending on dedicated public transport infrastructure on high capacity, priority transport corridors, there is considerable scope for a major reduction in subsidy levels over time.

The reasons for the initially higher costs are:

- Much higher quality public transport services than at present are envisaged;
- Minibus-taxi industry members who will become part of these higher quality integrated public transport systems will also qualify for operating subsidy, and
- Notwithstanding the integrated metropolitan public transport framework of the proposed new arrangements, many routes will still, for many years yet, involve moving people from distant residential locations to the metropolitan centres.

The following table compares the cost of continuing with the current commuter bus subsidies as apposed to the integrated metropolitan public transport scenario:

- Continuing the system as at present but 'normalising' the contractual situation by the replacement of Interim Contracts with Tendered Contracts and re-tendering any contracts that are unsatisfactory. This process would at least make provision for tightening loopholes that currently lead to a great deal of subsidy fraud in the Interim Contract system;
- Progressive replacement of all commuter bus contracts in metropolitan areas by contracts in which all road-based public transport vehicles (articulated BRT-type

buses, conventional buses and 'recapitalised' midi bus feeder services) operate within an integrated metropolitan public transport system.

The table includes estimates for creating integrated road-based public transport services in the four metropolitan economies of Johannesburg, Tshwane, EThekweni and Cape Town. All are costed on the same basis. For Cape Town, costs have been taken from detailed work that has been done for the Western Cape Provincial government regarding the full integration of bus and minibus-taxi services¹. For the other metros a similar pattern has been assumed.

The table compares the annual cost of the current subsidy commitment for commuter bus services with the estimated cost if all contracts were normalised, that is placed on a compliant footing in terms of vehicle types and operating conditions. It also gives an estimate of the annual cost of supporting an integrated system that includes the absorption of the minibus-taxi industry into formalised transport provision.

Comparison of the annual cost of the present funding regime with: a. 'normalised' contracts only, and b. 'normalised' contracts + full road-based PT integration in the four largest metros

Total annual subsidy at present¹	a. Total annual subsidy if all contracts are 'normalised'²	b. Total annual subsidy with four metros integrated³	Total annual subsidy allowing for 'catalytic' PT infrastructure spend⁴
R2,8bn	R3,2bn	R4,5bn	Could be reduced in proportion to the success of, and extent of, dedicated infrastructure BRT services/routes ⁵

¹The bulk of this subsidy, some R2,4 bn, is paid to provinces from the DOT. The balance is made up of additional subsidies that some provinces and local authorities pay themselves.

²The main reason for the higher cost of 'normalised' contracts is that the many older, non-compliant buses will have to be replaced with new ones.

³The main reason for the substantially higher cost is that currently unsubsidised minibus-taxi operators become part of the regulated, and subsidised, integrated network. For non-metropolitan areas where integrated transport is not pursued, costs are based on the normalised contracts scenario. So this estimate includes for both integrated metro areas and normalised other contracts.

⁴The main reason for the scope for subsidy reduction is that BRT dedicated infrastructure allows for greater vehicle utilisation rates and higher average patronage and hence lower unit operating costs. In the case of Johannesburg, proposals for a virtually subsidy-free system based on dedicated bus rapid transit routes are being developed. The potential for reduced subsidy arising from the introduction of high capacity BRT systems on dedicated infrastructure is also highlighted, though not quantified. A detailed appraisal of the scope for lowering overall subsidy levels needs a more detailed study. The point to note at present is that there will be a trade-off to be

¹ Business Case for the Restructuring of Subsidised Public Transport in the City of Cape Town; Western Cape, July 2006.

made between investment in infrastructure and the scope for operating subsidy reduction.

The main benefit is that by providing increased investment in integrated road-based public transport systems Government will be purchasing decongestion of the metropolitan areas together with support for continued, and even higher rates of economic growth.

In addition to this hard economic objective, integrated public transport network planning offers the means of securing the social and economic transformation of South Africa's metropolitan areas. From sometimes unsafe, rather unattractive, unduly segregated areas, integrated public transport can support transformation into safer, more socially sustainable and accessible places to live, work and invest.

MECHANISMS FOR ACHIEVING THE CHANGE FROM SEGREGATION-BASED BUS CONTRACTS TO INTEGRATED ROAD-BASED PUBLIC TRANSPORT CONTRACTS

The main constraint to achieving effective public transport integration is the format of current commuter bus contracts. It is not simply that their route structure may reflect outdated patterns of settlement and hence transport demand, but also that contracts are not specifically designed to secure agreed public transport objectives.

This, in turn reflects the fact that the commuter bus contracts have generally been established independently of the transport planning institutions of the areas which they serve such as through the ITPs and IDPs. In the case of the metropolitan areas this is an increasingly problematic situation in terms of integrating public transport provision.

To optimise the achievement Government's return on its investment via public transport subsidies, these integration objectives need to be clearly embedded in all future contractual arrangements that affect transport service delivery in these areas.

Given the requirement of bringing the minibus-taxi industry (and other road-based public transport provision) into formalised, integrated public transport arrangements, a substantial rethink of contracting arrangements currently underway. The principal requirement of such contracts is that they will need to be aligned with the currently emerging multimodal transport proposals within the various metropolitan areas.

This will mean that initially, very flexible arrangements will be required so that existing transport operations can be continued in the context of the developing framework for integrated road-based public transport.

Metropolitan contracts

Presently, competitive tendering is focused on individual contracts, each in their own exclusive area, with no built in incentive to support the optimisation of transport performance within a give urban/metropolitan area. As a result Government has no basis for ensuring that its commitment to subsidisation is actual achieving any integrated objective. There is an urgent need to establish contracts with inbuilt incentives to take account of transport services in all modes in a metropolitan area.

In this regard, the Provincial and Local Government in Cape Town has commenced and almost completed a radical restructuring plan for its road based public transport that also engages with Railplan proposals for major improvements to the rail system.

But recent experience with tendered contracts has shown that it is extremely difficult to achieve the sorts of operating conditions needed for the transition to fully integrated metropolitan transport arrangements without entering into extensive post contractual negotiations with a successful tenderer.

Many examples of malpractice in competitive tendering arise because of the tendering authority's inability to adequately appraise cost of a service in one mode of transport, when the future sustainability of that service may depend upon decisions affecting other modes of transport. Some tenders have been awarded at very low prices only to have the 'successful' tenderer threaten service disruption when 'competition' from another mode threatens profitability. Rather than comply with the terms of the contract they rely on Government being unable to resist the political pressures to reinstate the unsatisfactory service.

For the above reasons it is proposed that a different approach needs to be taken in order to implement the integration of the current subsidised bus services with other metropolitan public transport modes.

Performance based contracts provide the opportunity to achieve multiple performance objectives through separately rewarding service providers for achieving these objectives. Key performance indicators (KPIs) will be set nationally to both reward and penalise operators for their performance. These will need to be adjusted upwards by agreement among current contracting parties (usually the Province) and the future contracting party (the functional area-based Transport Authority) and the current and potential future operators. These KPIs will then be included in the contract documents and in all negotiating phases with the potential operators.

Because of the need for contracts to be set within the context of continually developing functional area transport network plans, the contracts for those operators engaging in functional area services should be of the 'gross' type. This means:

- all services are provided in response to an operating specification provided by the transport authority;
- that on condition that service specifications are met, all the costs of the operation are paid for by the authority, and
- ticketing is the responsibility of the authority and all ticket revenues are retained by the authority to offset operating costs.

In this way the authority is able to maintain the prerogative of further developing modal integration arrangements without threats of service disruption. It is proposed that the principal tool for achieving a smooth transition to integrated road-based public transport, will be the negotiation of Interim Contract extensions of up to 24 months with the incumbent operators of services identified for inclusion in a metropolitan integrated public transport network.

From the perspective of the public authorities the reasons for the proposed extension are:

- to allow the Department of Transport to prepare a fully motivated funding strategy for the additional subsidy that the new integrated approach to road-based public transport in the metropolitan areas will require;
- to allow metropolitan authorities/transport authorities to fully develop their integrated multimodal transport networks in both route scheduling terms and business terms;

- to allow metropolitan authorities/transport authorities to implement electronic ticketing infrastructure and support systems;
- to allow these new contracting authorities time to develop the necessary administrative capacity to be able to take over the contracting responsibility from the current ones (usually the Province).
- Further, the 24 month interim period is also required in order to allow bus operators sufficient time to acquire, but not lose out on, investments in the new vehicles that may be required to operate integrated services as they will, subject to continually maintaining the KPI standards, be 'prequalified' tenderers for a part of the new metropolitan network.

For the operators, the negotiated extensions would be subject to the following conditions:

- A commitment from operators with 'interim contracts' to transform from the current passenger numbers-based system to one in which subsidy payments will be kilometre based;
- A commitment from all contractor to moving to a 'gross cost' basis, with the relevant metropolitan transport authorities as soon as the necessary administrative arrangements in that authority are in place;
- A commitment from operators to recapitalise their fleets in accordance with the integrated network specifications of the metropolitan/transport authority;
- A commitment from operators to ongoing engagement with the BBBEE process of particular relevance to the objective of integrating the minibus-taxi industry with all other road-based public transport;
- A commitment from contractors to a range of performance indicators (KPIs) to be agreed with the metropolitan transport authorities. These may include:
 - Recapitalisation of their own vehicle fleet in accordance with the transport authority/s integrated network proposal;
 - incorporation of minibus-taxi ownership and operations;
 - route planning that reflects ITP-identified patterns of demand;
 - service scheduling and pricing to support priority users;
 - incorporation of electronic fare systems and monitoring arrangements.

Operators who are offered the 24 month extensions would also be informed that, if they comply fully with the above conditions, including meeting all the KPI's, they will be offered the option of a (gross-based) contract extension of up to 10 years.

They would also be informed that after the expiry of the further period of up to 10 years, the contracting authority will exercise the prerogative of offering all the services out on competitive tender on the open market.

Operationally, this transformation process requires the devolution to the metropolitan level of government of subsidies currently paid via the Provincial authorities to individual bus companies. In practice this will require a co-operative transition period in which Provincial contract management capability is passed on, in part or whole, to the metropolitan/transport authority.

At the same time the whole process of institutionalising (or, in the case of EThekweni, strengthening) Transport Authorities will be ongoing. The ideal scenario is that by the time the 24 month interim extensions expire it will be possible for all operators to contract directly with a Transport Authority.

This process would also occur within the framework of detailed arrangements at metropolitan level to bring all road-based public transport into a single, regulated public transport system. In effect the proposal will simply be giving belated expression to the requirements already set out in the 1996 White Paper and in NLTTA.

To commence with implementation of these proposals it is essential that Government engage separately with each metropolitan authority, with the support of Provincial authorities, to work out how detailed implementation will mesh with the different technical proposals emerging in these areas.

Non-metropolitan contracts

Separate arrangements are proposed for ongoing financial support for non-metropolitan towns and rural commuter bus services, with clarity being sought on a case by case basis as to whether such contracts have the potential to become part of a future integrated urban transport system or whether they may be serving a completely different function. All contracts should be reviewed on the basis of what economic role they are principally serving. If an urban transport function for an emerging metropolitan area appears to be the main purpose then contractors and local authorities could be urged to enter into preliminary discussion about possible future arrangements when an urban/metropolitan contracting party may become more appropriate than the current Province-based arrangement.

The principal indicator of readiness for an integrated metropolitan approach to service contracting will be the rate of growth of an urban economy and the extent of road congestion that is experienced.

In situations where commuter bus services are serving effectively as a rural development support mechanism, it might be appropriate for Government to encourage an engagement between current contracting parties and the economic development authorities to see whether different approaches to rural economic development might be a better use of public funds.

The default position in all of these situations will be to progressively apply the contract rationalisation process that will ensure that, over time, all bus contracts are recapitalised in terms of vehicles used and also placed on the less fraud prone kilometers-run basis.

TAXI TRANSFORMATION FRAMEWORK

In order to complete the transformation of informal minibus taxi operations into the mainstream public transport networks, the following issues will need to be addressed over the Phase 1 period:

- Finalise the conversion of permits to operating licences,
- Lift the moratorium on issuing new operating licences by July 2007,
- Inclusion of taxi operators and labour in IRPTNs,
- Employment retention
- Taxi recapitalisation project-proceeding with scrapping of old taxi vehicle and facilitating the purchasing of new taxi vehicles, within set targets
- 2010 opportunity for the taxi industry
- facilitating growth of the metered taxi industry

Conversion of permits to operating licences

The conversion process is at an advanced stage. A key challenge the lack of collection of approved licences – possibly due to the fact that operators are unaware of the availability of the new licences or are unable to meet the roadworthy and/or vehicle documentation requirements - which are pre-requisites for collection of licences.

The Operating Licence Boards will embark on a campaign to notify operators who have been granted licences that they need to be collected. It is envisaged that once this campaign is completed by June 2007, law enforcement of route-based licence compliance will commence.

Lifting the moratorium on issuing new operating licences by July 2007

The 1997 moratorium on issuing new licences will be lifted by July 2007 – after the conversion process above has been completed. New and current unlicensed operators will then be able to apply for licences. The Board's decisions in this regard will be based on the municipal transport plans. In particular, the IRPTN plan will contain an operational component that will indicate the role of all affected minibus operators within the Phase 1 corridors.

Inclusion of the taxi industry into the public transport subsidy system

The approach proposed in the previous section on "Transforming the Commuter Bus Regime" specifies that:

- Phase 1 network design of municipal and provincial level should move towards gross based contracts in which taxis provide trunk and/or feeder services – either using recapitalised taxis or buses.
- Taxi operators form and become shareholders in operating companies which in turn provides network services to the transport authority in terms of a formal performance contract.

Employment retention in the transformed taxi industry

As highlighted in the recent work by Johannesburg ensuring continued employment for all currently involved in taxi operations on the proposed corridors is key to successful implementation.

The basic premise of the dedicated IRPTN running on gross cost contracts is to ensure no loss of employment in the sector, and ideally, to actually increase employment. Although the IRPTN will utilise larger vehicles in order to achieve system efficiency,

drivers and other staff will work on a shift basis and there should be no overall reduction.

Thus, rather than a driver working a 16-hour day as is currently the situation for many minibus-taxi drivers, each driver will be allocated a 6-8 hour shift. However, drivers should earn approximately the same or more income even with the reduced hours.

Drivers and other staff will now be awarded a stable salary rather than depend on the number of passengers collected. New employment will be generated by positions not currently being offered, including fare collection staff, customer service staff, maintenance workers, and security staff.

The Sectoral Determination by the Department of Labour

The enforcement and implementation of the Agreement will be a necessary prerequisite to normal working conditions of drivers and will be a precondition for taxi subsidy or road based public transport subsidy.

Taxi recapitalisation programme

The scrapping process, which involves the physical scrapping of Old Taxi Vehicle (OTVs) by the Taxi Scrapping Administrator (TSA) was launched in October 2006. This process will be implemented in two phases - the first phase refers to scrapping of OTVs that belong to operators who voluntarily wish to exit the industry.

The second phase of the rollout strategy includes the scrapping of OTVs and voluntary replacement with New Taxi Vehicles (NTVs) once the scrapping allowance had been paid out. The TSA (besides scrapping OTVs) also facilitates the acquisition of the NTV as desired by the operator.

This voluntary exercise would be followed by the third phase in which vehicles on the National Traffic Information System that are regarded as the oldest would be required to be recapitalised in the earlier period while newer taxi vehicles would be scrapped later.

To date over 1300 OTVs have been scrapped and scrapping allowance in excess of R25 million had been directly paid into the bank accounts of the operators by the Taxi Scrapping Administrator (TSA) on behalf of the Department of Transport. It is envisaged that by the end of the 2006/07 financial year, over R100 million in scrapping allowance would have been paid out to taxi operators.

As part of the implementation of the TRP, mandatory distinguishing markers for New Taxi Vehicles (NTVs) entering the market as part of the TRP have been introduced through a regulation in the Government Gazette in January 2007. Funds for the introduction of the distinguishing markers has been earmarked by the DoT for utilisation by Provinces. This is meant to ensure that in the short term and for the current MTEF period operators are not expected to meet the costs of the distinguishing markers on the NTVs.

NTVs that comply with the mandatory safety requirements as certified by the South African Bureau of Standards (SABS) continue to enter the market. To date thirteen types of NTVs that comply with the safety requirements had been certified by the SABS.

The target for scrapping vehicles per year are as follows:

- 2006/07 5000
- 2007/08 : 20000
- 2008/09: 30000
- 2009/10: 20000
- 2010/2011: 15000
- 2011/2012: 5000
- 2012/2013: 5000

2010 Opportunity for the Taxi Industry

The 2010 Soccer World Cup event will require additional capacity to meet public transport needs. The current taxi fleet is insufficient to cater for the needs of users especially in metropolitan areas during peak hours. Long distance taxi operations will also be stretched to the limit during this peak two month period

In addition, normal operations will still be applicable as well as special World Cup services. It is therefore essential for transport authorities to plan their IRPTNs as well as special event services bearing in mind the need to maximise the appropriate use of NTVs. In this regard, and based on local plans, the 100 000 OTVs to be scrapped and replaced may not be sufficient to cater for the transport needs during the World Cup and an increase in the fleet linked to special Operating Licenses may be required. This fleet could (once the soccer competition is over) be integrated into the overall IRPTN and provide services on contract to a transport authority.

Metered taxis

The need to grow the metered taxi market as an alternative to car use

Very few South Africans use “metered taxis” for any trip purposes. According to the National Household Travel Survey of 2003, 1.1 percent of all household members made use of a metered taxi at least once during the survey period. This use was highest in metropolitan areas (1.8 per cent of people) and lowest in rural settlements (0.7 per cent).

Metered taxi services can provide an invaluable service especially for tourists, linking them with other public transport modes from their places of accommodation, or from tourist attractions. This applies particularly in the central parts of cities. The relative absence of metered taxi's, particularly “cruising taxis”, in South African cities represents a major gap in the public transport system, particularly in view of the coming FIFA World Cup. Cities with similar population of Johannesburg and Cape Town, such as Sydney and Singapore have good metered taxi services. For example Singapore, with a population of a little over 4 million has over 30 000 metered taxis.

Factors which support the growth of metered taxi services in cities around the world include the following:

- vigorous prosecution of “drink-and-drive” offences, including license and vehicle forfeiture;
- restrictions on the supply of parking spaces in parts of urban areas which attract trips such as shopping precincts, major sports centres and universities;
- road pricing and other restrictions on car use, and high charges for parking spaces;
- levies or tolls on the use of road space;
- priority lanes for public transport vehicles such as metered taxis; and

- demand-based regulation and other forms of regulation and control of metered taxi operators.

Current Legislation/Regulations

The principle is that :

- matters relating to regulation of the metered taxi should be the responsibility of the relevant Transport Authority; but
- the Minister in conjunction with the provincial MECs should issue guidelines and in some instances policy directives based on the relevant legislation to ease the barriers to entry into this market, facilitate growth of the sector and subsidise, to set minimum safety standards, quality, determination, differentiated tariff structure and to regulate the role of metered taxis to also play a feeder and distribution role for public transport networks.

Quantity

The transport authority must be responsible for deciding on such matters as the number of metered taxis required in its area (it will be guided in this by research undertaken by the Department, which research should include the part that the metered taxi might play in supplementing the urban transport network); the number and location of ranks; whether or not the taxis will be restricted to picking up at ranks or be allowed to ply for hire; whether each taxi must be restricted to one or more rank(s) or whether it may be allowed to stand at any rank where there is space; the relationship between, and distinguishing characteristics of, the metered taxi on the one hand and the private hire car on the other.

The Operating Licence Board must decide on an application in accordance with the advice it receives from the transport authority.

Quality

The guidelines should offer advice on such matters as minimum age of vehicle; identification as a metered taxi (colour, decals, identifying number, etc); minimum specifications for obtaining licence by July 2007; specific standards for metered taxis over and above those of the standard roadworthy test, testing of drivers, including checks on criminal records, but with special emphasis on local knowledge; and issuing of a special drivers permit/licence over and above the Professional Drivers Permit; periodic re-testing of both vehicles and drivers; and circumstances in which the planning authority might advise the OLB that an OL should be withdrawn.

Tariff structure

The DoT will co-ordinate the provinces and the Operating Licence Boards with regard to developing a guideline on tariffs for the different types of metered taxi services by March 2008. The service types range from providing conventional door-to-door metered taxi services to public transport network feeder and distribution services - particularly at night. For the latter, the IRPTN operational plans of the transport authority will address fare integration between public transport and metered taxis through the same electronic payment instrument for both.

Enforcement

This element has been the weakest link in previous efforts to ensure higher standards.

The task of enforcement should ideally be the responsibility of a dedicated section of the traffic police. Their tasks will include both on-the-road and off-the-road checks.

These will be required to ensure that regulations are being adhered to (e.g. that a vehicle being used as a metered taxi does indeed have an OL, and that it is not using a rank to which its OL does not entitle it) and that standards are adhered to, especially in respect of the safety of the vehicle and the driver.

The checks may cover any aspect of the legislation or regulations, but will specifically cover calibration and sealing/re-sealing of meters, along with any evidence that the meter seal may have been tampered with.

Implementation

In partnership with taxi bodies, motor manufacturers, tourism authorities and other stakeholders, government could incentivise the emergence of metered taxi services in time for the FIFA World Cup in 2010. The DoT should undertake the following :

- A 6 month feasibility study (in partnership with relevant municipalities and provinces), including the investigation of incentive schemes and regulation and control measures aimed to foster the emergence of a “cruising metered taxi service” in the core city areas of Johannesburg, Cape Town, eThekweni and Tshwane,
- It is also proposed that urban traffic law enforcement strategies (including but not limited to targeting “drunk driving” and prosecution, parking infringements and stopping violations) coupled with business development and marketing strategies – are necessary to assist the emergence of professional metered taxi services as a viable mode. In this regard, the feasibility study will also have to closely involve the Road Traffic Management Corporation,
- Based on the above, prepare an initial draft of legislation/regulations bearing in mind the imminent preparation of the final National Land Transport Act,
- Design and implement a communications/capability building programme for all stakeholders.
- Metered taxis will also provide public transport services on the Integrated Rapid Public Transport Network based on passenger volumes and demand and issues of subsidised will be considered seriously.
- The manner and form of the subsidy will be based on three components viz. capital; operational and passenger component. It is envisaged that this will ensure affordability for the passenger, whilst addressing fleet renewal and cash flow for a viable and sustainable service. From January to March 2008 detailed work will be undertaken to develop models that will inform the basis and mechanisms of implementing subsidies in the metered taxi and minibus taxi industry.
- The development of minimum safety requirements for the vehicle as well as the development of operational requirements.

7. LINKAGE WITH PUBLIC TRANSPORT INFRASTRUCTURE AND SYSTEMS FUND

The ***Transport Action Plan for 2010*** was approved by the Cabinet in October 2006. The vision is to accelerate the implementation of transport improvements that will both support the success of the FIFA 2010 events, and enhance South Africa's mobility and transport efficiency. Improvements in the public transport domain are the most significant area in terms of this establishing this legacy.

In February 2005 the Minister of Finance announced a set aside of R 3bn in additional funds to be allocated over the course of the next three financial years – 2005/6 to 2007/8 – for public transport infrastructure and systems improvements. The main purpose of the allocation was to kick start the Public Transport Infrastructure Fund (PTIF) by concentrating on 2010 related projects in the first few years.

Alignment between the PTIF and this Action Plan

The PTIF allocation was increased from R3bn to R3,741bn in 2006/7 and was increased by a further amount of R3.055bn from 2007/8 onwards. Of this amount R241,7m was transferred to municipalities in 2005/06. R700m is being transferred in this financial year (2006/07). Currently an amount of R5.5bn is available for further investment in municipal catalytic projects, bring the total allocation to over R9bn.

Given the development of the draft Public Transport Strategy and now the Action Plan in 2006/7 – there is a need to align the PTIF with the strategic Phase 1 goal of implementing Integrated Rapid Public Transport Networks. In this regard the DoT will step up its efforts to support municipalities in implementing the mandate of this Action Plan through developing high quality plans and proposals for funding from the PTIF.

In reviewing the current municipal proposals to the PTIF, what is clear is that a sole focus on infrastructure will not be sufficient to effect “*catalytic*”, change via the implementation of IRPTNs – unless the supporting improvements to the operational system, the institutional structures and overall public transport system management are being implemented as part of a single Phase 1 package.

Infrastructure capital finance through grants

There are currently two capital grant mechanisms applicable to public transport:

- The Public Transport Infrastructure and Systems (PTIF) which is dedicated to public transport.
- The Municipal Infrastructure Grant (MIG) which is paid to all municipalities, distributed by formula, and is intended to provide basic infrastructure to the poor. The MIG includes a funding window for ‘public municipal services’ which includes public transport.

At this stage PTIF allocations are based on applications but this makes it very difficult for municipalities to plan their public transport systems over anything but the short term. Therefore, it is important for the PTIF to move towards a formula based allocation with long term commitments of funding. This needs to be done together with clarity on the role of MIG with respect to public transport infrastructure.

It is arguable that MIG is best suited to providing for the type of public transport infrastructure required for all municipalities, assuming that this is primarily for the poor. This would include modal interchanges such as taxi ranks and bus stations. The MIG formula is being reviewed at present and this provision can be taken into consideration.

Further it is arguable that MIG and other funds raised directly by the municipality should be used for general shared roads (excluding road space dedicated to public

transport). The PTIF could then specifically target investment in public transport and NMT priority right of way.

This net effect of dedicating MIG to roads and 'general' public transport infrastructure would be that the PTIF would be allocated only to public transport infrastructure in cities above a size where congestion leads to the need for dedicated road space for public transport, associated infrastructure and the systems needed to run high volume public transport arrangements, including ticketing. It is suggested that these cities include the 6 metros, the three largest secondary cities (Buffalo City, Msunduzi and Mangaung) and the three other Soccer World Cup municipalities (Mbombela, Polokwane and Rustenburg).

Proposed funding criteria for PTIF

It is recognised that at present PTIF funding is accessed by application with DoT deciding on the allocation of funding based on the strength of the application. However, this approach does have shortcomings:

- It can lead to inequity in the way funds are allocated in that some municipalities which have a high-merit project do not apply with the same level of skill that others do.
- It makes long term planning for public transport infrastructure difficult as there is no certainty with regard to allocations beyond the medium term.

At this stage there may be too many uncertainties to move to a formula based distribution of funds. But there could be some parameters established for the fund which will allow for some degree of certainty that projects will be supported if they meet given criteria and that there is at least a 10 year commitment to funding levels.

At this stage it is only possible to make some broad suggestions relating to criteria for allocating PTIF funding or perhaps one part of the PTIF fund:

- Projects must bring about catalytic change which means rapid improvements to public transport.
- Only 12 municipalities are included, but they will have to demonstrate vision, capacity and commitment in order to access funds.
- An ITP which deals, *inter alia*, with long term capital funding and operational viability issues must be in place.
- Municipalities must make a capital contribution equal to at least 20% of the contribution made from the PTIF.
- Capital effectiveness must be demonstrated in terms of the capital expenditure per beneficiary (passengers using the public transport system on a regular daily basis).

Conclusion

This Action Plan proposes that the PTIF's current and future allocations be used as the funding mechanism to support approved Phase 1 IRPTN projects. This will apply to the 9 venue cities as well as to Buffalo City, Ekurhuleni and Msunduzi. It is important that the IRPTN implementation via PTIF funding be based on robust municipal network plans that include infrastructure, operations, maintenance, management and the inclusion of existing informal operators and labour.

At the moment 6 of the 9 venue cities (7 of the 12 Phase 1 Action Plan cities) seem to be moving the right direction in terms of scoping Phase 1 IRPTNs. These cities will thus require focused expert support to finalise implementation plans by August 2007. The remaining 3 venue cities (5 Phase 1 Action Plan cities) will require more intensive engagement in order to establish a basic network vision and concept before moving to more detailed planning.

In terms of creating a 2010 legacy of public transport improvement for the majority in the venue cities, 2007 is a crucial year. It is simply essential (given vehicle procurement and construction lead times as well as the need for involving minibuss operators and also the time needed for testing) that detailed implementation planning and initial procurement occur in mid to late 2007. In this regard the DoT's implementation support to the 12 cities and 6 districts will be integrated in terms of the PTIF, Planning and Public Transport Action Plan teams working jointly.

8. COSTING IMPLICATIONS AND FUNDING FRAMEWORK

COSTING IMPLICATIONS

Funding envelope required for Phase 1

The MTEF 2007/8-2009/10 budget for Passenger Rail amounts to R14.7bn. A portion of this amount (R5.4bn) will be used to upgrade the Priority Rail Corridors which form a component of the Integrated Rapid Public Transport Networks in some cities. A further portion (R2.6bn p/a) also covers the Phase 1 target of refurbishing enough coaches to achieve 10 minute headways on the Priority A and B Rail Corridors.

In addition, the Passenger Rail Plan outlines the need to purchase new rolling stock in the future as opposed to only refurbishing the existing fleet. This is anticipated to occur in Phase 2 and 3 and will involve the likely need to purchase 103 additional trainsets at a cost of over R15bn in order to achieve 5 minute headways. A further 71 additional trainsets will be required from Phase 3 onwards in order to maintain the 5 minute headway standard due to the future scrapping of coaches that can no longer be refurbished. This is expected to cost an additional R11bn.

An amount of R8.3bn is also budgeted in the 3 year MTEF period for existing subsidised road-based services. This amount simply covers the current services. The current transformation plan for these services (**see Section A.6.**) envisages an increase in the subsidy requirement from the current R2.8bn per annum to R6bn per annum in order to normalise the current contracting compliance in terms of vehicle quality as well as to fully integrate all road-based services (bus and minibus) in 4 metro cities into a Network.

In addition, it is estimated that up to R10bn in total will be required for the Phase 1 capital costs for Road-based priority corridors in the metropolitan cities (costed up to a full Bus Rapid Transit infrastructure standard) and a further R3bn for the same in the secondary cities. To fully implement a basic Phase 1 Integrated Public Transport Network concept in 6 rural districts (including high quality walking and cycling facilities and affordable periodic contracted public transport services) is estimated at R3bn in total.

The Action Plan encourages investment in priority infrastructure and systems for road-based networks [up to full Bus Rapid Transit (BRT) standard with median exclusive lanes, median enclosed platform stops and pre-board fare payment and verification] with a view to reducing the requirement for ongoing operating subsidies due to the enhanced speeds and improved vehicle utilisation that dedicated infrastructure enables.

The immediate implementation task at city level is to engage in a detailed operational cost study by July 2007 to indicate the savings in operational subsidy that will result from implementing Phase 1 road-based corridors to full BRT infrastructure and service standards.

Currently there is R5.5bn in the PTIF that is awaiting final allocation to transport authorities or municipalities for the 2007/8-2009/10 MTEF period. The Action Plan envisages that the current and increased future allocations to the PTIF could serve as the ideal vehicle to implement the additional funding required for the capital costs of implementing the road-based component of the IRPTN.

Thus, in addition to the current MTEF rail and bus subsidy budget, and also assuming that R4bn of the current R9bn in the PTIF can be applied to IRPTN Phase 1 projects – implies that up to R6.5bn in additional (mostly capital) funding is required over a 4 to 5 year period in order to initiate Phase 1 implementation in up to 18 cities and districts.

In addition, a further R3.2bn annually is required for the full rollout of road-based tendering for subsidised contracts as well as for the full integration of bus and minibuses into a combined network. This estimate is subject to the outcomes of the detailed operational modelling of the IRPTN by the cities in 2007.

It should be noted that the amount for operating subsidies is likely to reduce per unit due to the implementation of dedicated road priority infrastructure networks. In fact the major objective of BRT-type systems is to develop networks that require little (if any) operating subsidy for high volume corridors.

FUNDING FRAMEWORK

Government spending on public transport

The rapidly growing awareness of the need to focus increased resources on public transport is reflected in the fact that expenditure on Public Transport – in combination with expenditure on stadia for the World Cup 2010 – is one of four public expenditure priorities as articulated in the 2006 October Medium Term Budget Policy Statement.

Public transport requires both operating and capital resources. These can be financed by

- grants,
- fare box revenues, and
- local taxes and charges.

Public transport systems generally always require some form of public resourcing to supplement fare revenue. Systems which are purely market driven are not able to provide a level of service adequate to halt the shift to private vehicles and the diseconomies which accompany this. Good public transport systems are generally dependent upon running some vehicles at a loss in order to provide the regularity and comprehensiveness of service that in turn leads to ridership levels that will enable other vehicles to run profitably – hence the need for an integrated network of services.

Shift towards capital subsidies

The emphasis of government support to public transport has been on subsidising recurrent costs through the rail and bus subsidies. However, recent initiatives, such as the Johannesburg Rea Vaya project, have begun to emphasise the need for capital subsidies for dedicated bus corridors, rather than operating subsidies.

The fully dedicated corridors result in much quicker journeys since vehicles are not stuck in traffic. This allows them to run more trips and carry more passengers during the lucrative peak periods, while the faster service attracts more users to the system, further enhancing financial returns for a given level of infrastructure. The recently established Public Transport Infrastructure and Systems Fund provides an obvious mechanism for grant funding of capital infrastructure.

Covering operating costs of public transport

There is evidence in some countries to suggest that Bus Rapid Transit-type operations may not require operating subsidies. However this is not universal. In particular, a full trunk corridor-type system will require extensive feeders. Depending upon travel demand patterns, which are in turn dependent on factors such as urban form and peak ratios, there is a strong possibility that an extensive feeder service will lead to need for some subsidisation of operators.

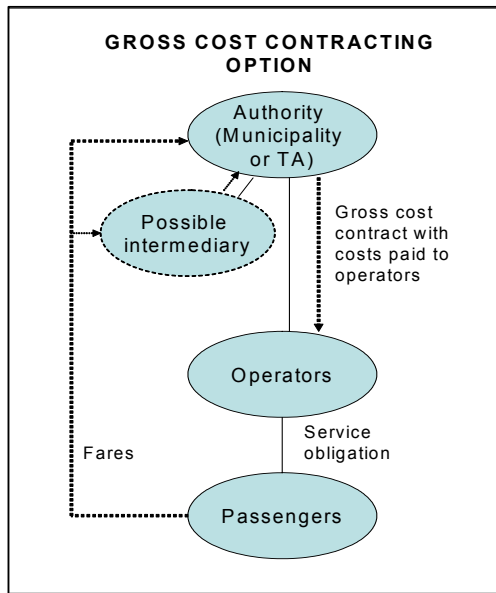
Furthermore, the recurrent costs of that part of the system that is run by the public sector need to be financed, and are unlikely to be able to be covered from fare box revenues. This includes

- regulatory functions,
- the overall administration of the systems,
- infrastructure maintenance, and
- possibly interest payments on loans to finance capital, to the extent these are not grant funded

In general good systems based on sound business models can help limit subsidy needs, and shift what subsidy needs there are more towards capital rather than operating subsidies.

Managing risk in a gross contracting system

In a gross contracting system, the cost of providing services to a set level is generally possible to fix to a reasonable degree of accuracy - based on a robust functional area network operational plan. Fare revenue is controlled by the authority with operators paid for contracted vehicle kilometers and not per passengers carried.



The risk lies in the system not attracting sufficient passengers. Thus, while expenditure is relatively clearly fixed, fare box revenue can be uncertain, and, if too low, leaves a deficit to be financed. It is particularly uncertain where step changes are being made to the system.

The deficit could be substantial in relation to available revenues at local level, including metropolitan governments. It is thus advisable that national government supports provincial and local governments as the new systems are implemented, recognising that there may be a need to adjust subsidy levels. This will require national government to be fairly closely involved in local decision making in the early stages of implementing new public transport systems locally. Once the parameters of the new system are clearer and there are fewer uncertainties, more predictable funding streams can be established, which require less central involvement.

Overall strategic framework for funding public transport

The strategic framework for funding public transport over the coming 10 years is based on the following approach:

- An estimate as to what it will cost to provide a high quality public transport system in the country as a whole including:
 - Capital costs for public transport infrastructure and associated systems.
 - Capital costs for vehicles and rolling stock.
 - Operating costs incurred by municipalities (transport authorities) relating to operation and maintenance of infrastructure and public transport systems.
 - Operating costs incurred by operators for all modes of transport.

- Capital funding mechanisms including:
 - Grant funding arrangements.
 - Funding by municipalities (transport authorities) for infrastructure, from their own sources, including borrowing.
 - Funding provided by operators.
- Operating funding mechanisms including:
 - Subsidies provided to transport authorities or operators.
 - Revenue raised by municipalities and allocated to the public transport function.
 - Fare box revenue.

While it would be preferable to define this framework for the country as a whole for all modes it is recognised that this is a large task and figures can only be provided at the highest level. Therefore the emphasis is placed on road based public transport systems in the functional area – using Johannesburg and Cape Town as an example.

Capital expenditure envelope for public transport infrastructure

The capital investment envelope is sub-divided as follows:

- Metros and three secondary cities — which typically need high volume public transport systems on dedicated road space and which will require relatively high levels of investment in infrastructure.
- Other cities, towns and rural areas where the emphasis on infrastructure is relatively low as dedicated road space is not required, and where the investment is primarily concerned with modal interchanges.

Transport Authority operating costs

These transport authorities, assuming that they are not currently responsible for rail, incur the following costs:

- Maintenance of public transport infrastructure which includes:
 - Road maintenance.
 - Maintenance of structures.
- Maintenance of signalling, IT and ticketing systems.
- Operation of signalling, IT and ticketing systems, particularly in the case of 'gross cost' contracting arrangements.
- Security.
- Regulation of taxi and bus services.
- Management costs and overheads.

Taking figures for 2009 when the new 'gross cost' system is intended to come into operation, the breakdown of figures is given in the table below:

	Indicator	Indicator value	Amount (R'000s)	% split
Planning, regulation and management				
Management	% of opex	28%	8,386	1%
Planning	% ave capex	0%	3,920	1%
Regulation of operators	% of SP exp	4%	15,383	2%
Sub-total			27,689	4%
Security				
Systems operation				
Integrated ticketing	% of SP exp	1%	5,000	1%
Maintenance of infra & systems	% of SP exp	1%	5,376	1%
Infra finance related	R/000 trips	0.50	19,520	3%
Depreciation	% of cap	2%	31,400	5%
Capital charges (interest)	% of cap	7%	64,715	10%
	% of cap	10%	24,261	4%
			88,976	13%
Operator payments				
Operator payments - feeder	Profit	10%	97,812	15%
Operator payments - trunk	Profit	10%	384,373	58%
Sub-total			482,185	73%
TOTAL			660,145	100%

Table above is a breakdown of costs for the 'gross cost' account for the authority (indicative numbers for Cape Town, 2009)

These figures are shown graphically in the following graph which also shows the trends as a gross cost system is rolled out.

Operating costs incurred by operators

For this section it is assumed that these operating costs are unrelated to the style of contracting of operators ('gross cost' contracting vs licensing). The costs are based on a cost model which is based on capacity of vehicles, occupancy, trip lengths and unit operating costs per km, with some preliminary figures given below:

Structure of cost per passenger km for public transport service, based on gross costs including vehicle finance

Capacity		Bus				Taxi	
		170	160	130	100	35	16
R per km							
Direct		4.99	4.99	4.99	2.69	1.80	2.00
Indirect		5.00	5.00	5.00	5.00	4.00	2.50
Finance		8.50	8.10	7.29	6.48	3.24	2.00
Total		18.49	18.08	17.27	14.17	9.04	6.50
Total excl finance		9.99	9.99	9.99	7.69	5.80	4.50
Occupancy %							
Occupancy	80%	136	128	104	80	28	13
	65%	111	104	85	65	23	10
	50%	85	80	65	50	18	8
R per pass km							
Total with finance	80%	0.14	0.14	0.17	0.18	0.32	0.51
	65%	0.17	0.17	0.20	0.22	0.40	0.63
	50%	0.22	0.23	0.27	0.28	0.52	0.81
R per pass km							
Total less finance	80%	0.07	0.08	0.10	0.10	0.21	0.35
	65%	0.09	0.10	0.12	0.12	0.25	0.43
	50%	0.12	0.12	0.15	0.15	0.33	0.56

Note: costs for buses based on information from Lloyd Wright for Jo'burg

These figures show the impact of vehicle size and occupancy on the operating cost per passenger km, with figures ranging from R0.14 to R0.81 per passenger km. In the case of Jo'burg the Rea Vaya system proposed sits at the lowest cost end of this spectrum.

Obviously in the case of gross cost contracting these figures have a direct impact on the operating expenditure of the operator and the authority which pays for cost per vehicle km. They are fundamentally important to the overall viability of new public transport initiatives in South Africa and need to be better understood.

Capital finance for vehicles

In the section above, the capital cost of vehicles for the catalytic initiatives for Johannesburg were estimated very roughly indicating that the levels of expenditure were of the order of R900 million for Phase 1. It has not been possible to estimate the overall costs of vehicles for all municipalities, but, based on some equity in relation to population in the 12 municipalities being considered, the total may be of the order of R5 billion.

In considering how this capital should be funded there are two sources:

- Funding raised by operators through equity finance or loans.
- Grant funding to capitalise or recapitalise the fleets.

From the point of view of the viability of operations, the net effect of the subsidy, when comparing vehicle subsidies to operating subsidies, is the same.

It is therefore assumed here that operators have to cover the capital costs of vehicles, beyond allocations from the present recapitalisation fund. The analysis thus provides for interest charges and a depreciation provision on the operating account for vehicles.

National operating subsidies

It is impossible for any transport authority to develop a business plan for a public transport system unless they know the level of operating subsidy which will be available to them. At the very least the level of subsidy must continue at the levels currently allocated for bus subsidies to each metro or functional area.

The transport authorities will then have to make a judgement call as to the proportion of this subsidy which can be allocated to the catalytic initiative. However, this implies that in the short term they will have to plan for zero operating subsidies for the catalytic initiatives as they have no control over the subsidy streams which are in place - at present applied to standard buses and rail.

B. ENHANCED COMPONENTS OF INTEGRATED RAPID PUBLIC TRANSPORT NETWORKS

9. INTELLIGENT TRANSPORT SYSTEMS IMPLEMENTATION IN PUBLIC TRANSPORT NETWORKS

Introduction

The success of implementing Integrated Rapid Public Transport Networks, is largely dependent on the establishment of adequate operations and management systems. These systems in turn make use of a toolbox of technology applications, collectively known as Intelligent Transport Systems (ITS).

Extensive technology infrastructure need to be provided and planned for to support the envisaged public transport systems. Typical elements include the establishment of a public transport operations centre, the tracking of public transport vehicles along major routes, passenger information displays at stops and stations, closed circuit television cameras at station precincts, traffic signal pre-emption and priority for public transport vehicles, and an integrated electronic fare collection system to enable integrated fare structures, targeted user-based subsidies and form the core of the public transport data base.

Intelligent Transport Systems (ITS) in context

Intelligent Transport Systems (ITS) refer to the use of technology within the transport environment. It covers all modes of transport and considers all elements of the transportation system – the user, the driver, the vehicle and infrastructure, interacting dynamically. The overall function of ITS is to improve the operation of the entire transportation system.

Intelligent Transport Systems refer to a wide variety of electronic control and information systems that can be employed to improve the operation of a transportation network in general. These systems have been classified and categorised internationally for ease of understanding the extensive application environment. Categories include Traffic Management and Operations, Incident Management, Public Transport Management, Freight Operations Management, Transportation Data Management, Electronic Fee Collection, Disaster Management and Coordination, and various others.

Interaction between the various ITS categories should be considered when planning any ITS system. In particular, sharing of technology infrastructure - especially communications infrastructure - can be of great value to implementing authorities.

ITS in Public Transport

ITS Systems in Public Transport are critical for providing the management and control function in support of a sustainable IRPTN, largely through the establishment of an efficient communications network and operations centre.

Public Transport can further be enhanced through ITS Systems by:

- providing real time passenger information at stops and stations
- giving priority to public transport vehicles to reduce journey times and improve reliability
- electronic payment systems to allow a cash free payment environment, enable integrated fare collection as well as apply user subsidies.

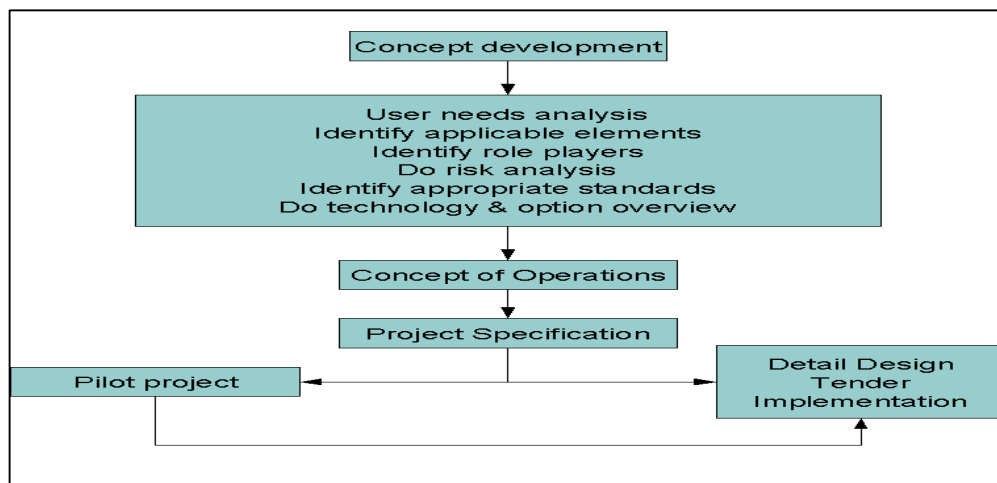
Planning for ITS implementation in Public Transport

ITS implementation in Public Transport must be subject to proper planning, based on development of a Concept of Operations (CoO) for each implementation environment. The CoO should ideally be developed within the context of a regional ITS Strategy to ensure an interoperable and effective solution.

An ITS strategy generally includes some or all of the following elements:

- Inventory of current (and planned) systems, communications infrastructure, and related policy documents
- Problem statements for the region/city that could potentially be solved with ITS tools
- A collection of ITS deployments to address the problem statements
- Possibilities for integration with existing systems
- Statements regarding the adoption of specific standards that should be prescribed for ITS implementations

On a **project level**, it is imperative that a conceptual design be put in place. This will ensure that critical success factors are identified early and will go a long way towards ensuring sustainable deployment. Once the conceptual design has been agreed and a cost estimate provided, stakeholders can be approached to determine if they would be willing to participate in the implementation of such a system and what costs will be involved. The figure below outlines the steps in a typical ITS implementation.



Flow Diagram for Phased Implementation

Typical ITS implementation in support of IRPTN

The typical elements of an ITS deployment (based on IRPTN requirements developed through a regional Concept of Operations), could include the elements listed and discussed below.

(i) Communications backbone

An extensive communications network needs to support the roll-out of the system. Dependant on the requirements (bandwidth requirements), the type of communications infrastructure can be determined. It is advisable to establish a fibre optic core network, supported by wireless systems. Provision should also be

made for already established linkages between associated control and/or operational centres.

(ii) Public Transport Operations Centre

The operations or management centre forms the heart of the operations. This is where the entire IRPTN system is managed on a real time basis. Interfaces between the various ITS elements are provided through a systems integrator contract. Software is required for the public transport operations to assist with scheduling, routing, tracking, management, dispatching etc.

(iii) Surveillance

Full coverage of major public transport corridors should be provided to ensure user safety and improve operational aspects. CCTV as well as digital video recorders form part of this element, and surveillance should be provided actively either from the operations room, or else from a contracted surveillance operator;

(iv) Passenger Information Signs

Information displays at stops and major intermodal stations are critical elements of ensuring an acceptable user experience in the system

(v) Electronic Fare Payment System

An integrated electronic fare payment system needs to be in place to ensure not only passenger satisfaction, but also provide the basis of the information required to operate and plan these services. Elements included are the smartcards, fare readers, associated software as well as the distribution network. When costing these elements, greater efficiencies and significant savings can be attained through a national roll-out of such a system and through appropriate utilisation of banking industry payment methods.

(vi) Vehicle tracking

Automatic vehicle location units, information signs and cameras (for security purposes) will be provided on board all vehicles. This will ensure that the necessary information is provided to the operations centre to ensure the smooth functioning of the system

(vii) Traffic Detectors

Traffic detectors and associated infrastructure should be provided to ensure that public transport priority can be implemented at intersections

In order to ensure sustainable implementation of the above elements, two further aspects are critical and have been considered already in the early stages of planning i.e. **operational** aspects and **maintenance** considerations. An operational plan will be developed and human resource requirements identified to ensure that the necessary skills base is in place to operate the public transport centre. A comprehensive maintenance plan will also be put in place to ensure that the credibility of the system is upheld once operational.

Costing

This section discusses the cost of implementation of a typical public transport ITS system, related to relevant elements identified above. It is largely based on deployment of a rapid bus system, and assumes a route length of 130kms with stops at every kilometer. Figures for a partial deployment are also provided, assuming that the route length is halved.

The figures provided below are representative of the most basic system, and provides the core elements to further expand the public transport ITS infrastructure. Note that the estimate does not include operational and maintenance costs – it only presents initial capital cost requirements. It is critical that O&M costs be budgeted for to ensure a sustainable system.

Cost Element Deployment

Cost Element	Partial Deployment	Full Deployment
1. Fare Collection <i>Smart Cards, readers, software, network Distribution network</i>	R 15,000,000.00	R 25,000,000.00
2. Communications backbone <i>Fibre optic network, linkage to other operational centres, splicing, drivers</i>	R 14,500,000.00	R 26,500,000.00
3. Passenger information Signs	R 4,000,000.00	R 8,000,000.00
4. Surveillance System <i>CCTV, DVR's</i>	R 1,200,000.00	R 1,800,000.00
5. PT Operational Centre <i>Wall display, software, hardware</i>	R 7,500,000.00	R 7,500,000.00
6. Onboard units	R 2,200,000.00	R 4,400,000.00
7. Traffic detection <i>Detectors, transceivers</i>	R 2,500,000.00	R 5,400,000.00
8. Power supply	R 4,200,000.00	R 8,400,000.00
9. Contingencies @ 10%	R 5,110,000.00	R 8,700,000.00
TOTAL COST	R 56,210,000.00	R 95,700,000.00

10. FARE INTEGRATION THROUGH ELECTRONIC FARE PAYMENT IN PUBLIC TRANSPORT NETWORKS

Introduction

The implementation of IRPTNs creates the opportunity to move towards integrated electronic fare payment in support of a sustainable public transport operational environment. In particular, electronic fare collection and information systems can assist in improving intermodal transport solutions, provide the impetus for efficient information systems, and improve the user experience of public transport services.

The introduction of an electronic fare payment system will enable integrated fare structures, free transfers as well as targeted user-based subsidies. Furthermore, by ensuring that the fare system is integrated with a global positioning system (thus providing real time information on vehicle and transaction location), it becomes a critical element of the management and control of the public transport operation as a whole.

Electronic Fare Payment in Context

Electronic Fare Payment allows passengers to pay for public transport services electronically. Electronic Fare Payment systems integrate electronic communication, data processing, data storage and microcomputer technologies into the process of revenue collection and subsequent record keeping and funds transfer.

The total process can be divided generally into “front end” activities which are seen by the end user and the “back office” activities which usually include management of payment media, account maintenance, transaction processing, revenue management and settlement, customer service, reporting and auditing. The most common hardware options for payment at the front end are smart cards, transponders and cellular phones.

EFP Concept for implementation

The EFP concept which is proposed for national implementation supports a universal low value payment instrument, such as a smart card, which could be used for Public Transport payment, other transport-related services but also non-transport services e.g. retail transactions for fast food, telephone etc. It is implied that this smart card is procured from the user's bank, although a bank account is not a pre-requisite since prepaid cards can also be obtained. The clearing house function is provided by the bank, implying that the electronic money risk lies with the banks. The distribution network of the banks will be used to make the payment instrument available.

A key aspect of the implementation of electronic fare payment systems is the system's ability to automatically trigger information every time a transaction takes place (i.e. when a passenger uses a smartcard on a PT vehicle which is enabled with a point of sale device). This information is transmitted to a Data Warehouse – which contains both Transport Operator and Transport Authority information. This information allows Transport Authorities and Transport Operators to effectively manage their services. The information thus obtained, has a number of uses, including:

- public transport subsidy management
- public transport operational planning
- public transport real time information services
- public transport planning

It is clear from the description of the concept above, that Electronic Fare Payment can be a valuable and critical tool to assist with the implementation of the IRPTN system. It provides the means of obtaining real time as well as historic information for efficient management of the system.

The two aspects of the concept are depicted in the following Figure i.e. (i) the Universal Payment Instrument as well as (ii) the triggering mechanism to obtain real time and historic information.

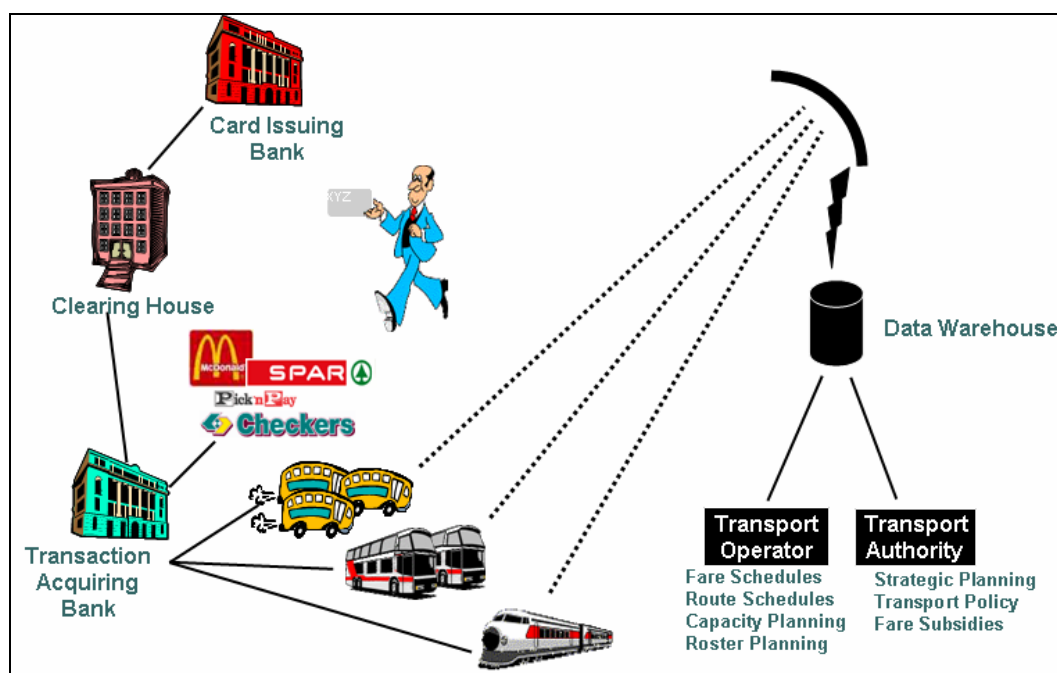


Figure: Electronic Fare Payment Concept

Principles of the Electronic Fare Payment Concept

The following key principles are implied in the concept as described earlier:

PRINCIPLE 1: Electronic Fare Collection and Information Systems in Public Transport will be implemented as an integrated system to enable the collection of public transport data electronically.

An Electronic Fare Collection System or a Public Transport Information System must not be implemented as separate standalone systems. Implementation of these elements as an integrated system, provides access to extensive information for planning and operational purposes in an efficient manner.

PRINCIPLE 2: The impetus for implementation of these systems needs to be provided by Government.

The full functional implementation of these systems and associated benefits, extend beyond the requirements and/or needs of the Public Transport Operator only. Guidance for implementation should be provided by the Department of Transport to Transport Authorities. If supported and guided by Government, it will help build

marketplace confidence, promote growth of the electronic technology industry and encourage producer investment and involvement.

PRINCIPLE 3: EFC and Information systems are critical elements to ensure integration in Public Transport, and will be aligned with fare structures and fare subsidy policy.

Public transport integration cannot occur without the alignment of the mentioned elements and combined in a holistic plan.

PRINCIPLE 4: Data generated by the Electronic Fare Collection Systems, is owned by Government.

Public transport operations and associated infrastructure are largely funded by the public sector. Data generated by these systems, must interface with an appropriate Government owned transportation data warehouse.

PRINCIPLE 5: A National Public Transport Data Warehouse as well as regional Public Transport Databases need to be established, with level of access based on requirements and functions of the various stakeholders.

Both historic and operational data will be generated by the Electronic Fare Collection System. Historic data used for strategic planning and subsidy management purposes, should typically be available at National and Provincial levels of government and should be housed in a National Public Transport Warehouse. Real time information will be generated regionally and should be available to the local transport authority and public transport operators who place more emphasis on operational management.

PRINCIPLE 6: Data structures will be based on International Standards, but adapted to suit the local application and implementation.

It is imperative that guidance be provided on the type and format of data that needs to be provided to the national and regional databases. Generic guidelines based on International Standards will be provided, but will be adapted to suit a specific local deployment based on the needs of the implementing authority.

PRINCIPLE 7: Open systems must be specified for the relevant elements of the EFC & Information systems.

Non-proprietary systems must be specified as far as possible for all aspects of the EFC and information systems. This includes the validating equipment, communication links, databases and the payment instruments.

PRINCIPLE 8: Electronic Fare Collection and Information Systems in Public Transport is a subset of Intelligent Transport Systems (ITS) and will be planned and implemented holistically to ensure integration and associated efficiencies.

EFC and Information Systems will not be implemented without taking cognisance of relevant linkages with other ITS systems. This would rule out the possibility of duplication of communications backbones, databases, technology and non-interoperability within this context.

PRINCIPLE 9: The Banking system and infrastructure will be utilised where possible to prevent duplication of payment and banking infrastructure and services.

There is some justification to utilise the banking system and infrastructure specifically for clearing and settlement of payment transactions, their distribution network as well the payment instrument. Duplication of these aspects may result in excessive costs to the transport industry, but an assessment will be necessary. However, the solution must be a transport solution.

PRINCIPLE 10: The role of the Reserve Bank as guiding authority within the payment environment, will be respected and their guidelines adhered to – specifically as it involves electronic money.

Note: the Reserve Bank is part of the consultative process. The concept will be in line with their policy on electronic money.

PRINCIPLE 11: The introduction of a low value payment product in Public Transport, needs to be introduced in a way to maximise social benefits to the end-user.

Public Transport Passengers must be able to use their low value payment instrument to purchase products not only in the Transport Sector, but also in the retail sector. Transport must provide further impetus to “bank the unbanked”, in line with Government policy.

PRINCIPLE 12: The Public Transport user must be able to use the electronic payment instrument on any mode of transport anywhere in South Africa.

Key Issues for Implementation

Several key issues need to be addressed prior to implementation. These include:

- Further engagement with banking representatives through a technical working group to agree on principles and to align initiatives;
- Agreement on transportation user needs for each mode of transport to ensure that the payment mechanism and technology solutions are aligned with these user needs;
- Initiate consultation process with the industry to obtain input to improve system and give signals to industry to conform to proposed regulations;
- Formalise Electronic Fare Payment guidelines and regulations.

Key considerations for Transport Authorities

It is envisaged that EFP systems will be implemented initially in the six major metropolitan areas, which are also earmarked for extensive ITS systems implementation. These systems are complementary and interdependent.

The following actions are identified for the major Transport Authorities:

- Develop an implementation plan for EFP systems based on the concept described above
- Define roles of different modes of transport. It is likely to be implemented first on rail and the rapid bus network. Taxi's involvement initially will be voluntary
- The rail sector will need to ensure compatibility when their fare payment system is upgraded as is currently being planned.
- The move towards a “gross” contract system for metropolitan areas enables integrated network planning and simplifies the fare payment rules as a first step toward integrated fare payment.

- Plan for an integrated fare structure between all modes to ensure EFP roll-out across all modes in medium term.

11. HIGH QUALITY NON-MOTORISED TRANSPORT NETWORKS

Introduction

Non-motorised transport (NMT), particularly walking and cycling, will serve as an important mode of transport in the Integrated Rapid Public Transport Network. This section outlines the actions required to realise positive NMT environments and improved connections within the IRPTN. It also provides a recommended framework for implementation of a Phase 1 package for NMT for pilot metropolitan cities and districts.

Actions to improve NMT linkages

Improvements as part of the IRPTN to NMT fall into three main categories:

- 1) Planning
- 2) Infrastructure and design linked directly to the rapid public transport projects as well as for priority local areas
- 3) Other generic actions which serve as supportive programmes to facilitate NMT usage.

Undertake various scales of NMT Planning

NMT planning has traditionally been excluded from the transport planning process. However, recently there is an increasing recognition of the need for NMT planning at both strategic level in terms of a vision and goals for a City or District Area, as well as at a more detailed local area level - to begin to identify specific NMT infrastructure projects required.

The basic steps to be undertaken as part of the planning exercise includes:

- The development of a strategic framework for the planning authority which includes their Vision, Objectives, Strategies and broader Programmes for NMT.
- Analyses of the metropolitan or regional systems of public transport, travel demand, employment nodes and green systems – in order to understand the key metropolitan NMT movement requirements and NMT priority areas to inform priority local areas for more detailed planning.
- Preparation of detailed local area plans for priority areas which includes the design of local links and nodes.

The basic steps included in the local planning exercise include:

- surveying the extent and nature of various forms of NMT within the area;
- determining the specific needs of the community with participation of all stakeholders;
- indicating constraints for NMT users in the area;
- identifying practical NMT infrastructure interventions;
- designing engineering measures that address problems including estimated costs and an implementation plan;

Implementing Improvements to NMT Infrastructure and Design Elements

Typically NMT as preferred mode is only successful in areas that are transformed into pleasant and attractive environments and where the routes form natural connections for diverse attractions (public transport stops, tourist activities, shops, offices, etc.), and serve as both a destination and a thoroughfare.



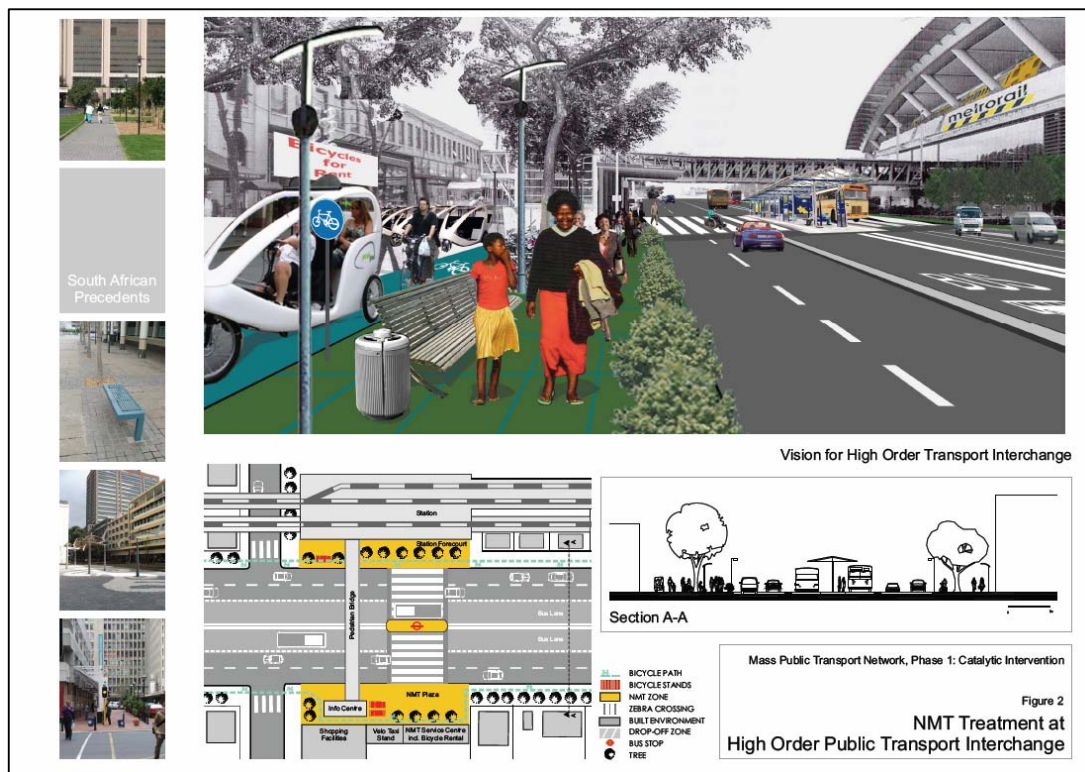
Improvements would include the incorporation of appropriate infrastructure and design elements into IRPTN plans to cater for walking and cycling passengers. These elements include:

- The identification of a network of NMT route facilities such as sidewalks, cycle paths and lanes.
- Lighting to improve security on neighbourhood routes and at the public transport stops and interchanges.
- Signage, route markers and information kiosks
- Landscaping and street furniture
- Special Needs Passenger accessibility
- Pedestrian crossings and intersection treatments
- Bicycle parking
- Traffic calming
- Pedestrian streets or public transport malls



Examples of how these improvement measures could possibly be combined to provide for better access of NMT users within various public transport links and nodes are illustrated in the three renderings below:

NMT Treatment at Higher Order Public Transport Interchange



NMT Treatment at Public Transport Feeder Route



NMT Feeder Link to Public Transport



Implement Supportive NMT Programmes

Ensuring that NMT is maximised is not only about constructing suitable infrastructure. It is also about ensuring that other NMT programmes are introduced to support and encourage the use of cycling and walking as alternative modes that are well integrated into the broader transport system.

Develop Bicycle Taxi Schemes



Bicycle taxis and modern pedicab design and formal pedicab station

Bicycle taxi schemes can also be considered as a viable NMT mode and a feeder to motorised public transport. They are attractive in CBD environments for tourists and short distance travellers, but also as a viable alternative to motorised forms of public transport in CBD environments. Factors to consider include the following:

- Operations and financial sustainability of the scheme
- Requirements of permits or operating licenses in the South African context
- Training of drivers
- Vehicle licensing and testing
- Bicycle pathways and other infrastructure to support safe/quality environments.

Bicycle Rental Schemes

Bicycle rental is also an important aspect when NMT, specifically cycling, is considered as a feeder to public transport, as it provides additional travel opportunities for users of public transport. The bicycle rental is especially useful for non-regular users of public transport such as tourists. It is important that a good base network of cycle pathways be provided to ensure that a safe and quality environment is provided for cyclist to ensure a sustainable rental system.

Additional factors to consider with bicycle rental are as follows:

- Service provider: Private operator or community-based projects and job creation opportunity
- Security and method for tracking lost bicycles in the system
- Network infrastructure
- Rental coverage zones
- Cost structure of rental
- Type of bicycle and maintenance requirements
- Secure shelters and safe keeping storage

Increase Information and Awareness

NMT is still not really recognised as a mode of transport in South Africa. This lack of recognition is manifested in a general lack of consideration for pedestrians by motorists. Actions to increase NMT information and awareness could include the following steps:

- Provide information to users and visitors on bicycle rental, bicycle taxis, cycling and walking routes.
- Introduce media campaigns to promote the role and use of NMT within an area.
- Develop education campaigns to change behaviour patterns and increase NMT awareness among all ages.

Increase the Distribution of Bicycles

Access to bicycles is key factor in increasing the number of people that cycle to access public transport. Particularly in low income households, affordability is a major barrier. Distribution of bicycles can either take place by making more affordable vehicle models available or by bicycle rental.

Currently DOT is carrying out the Shova Kalula project and a number of other NGO programmes such as Bicycle Empowerment Network (BEN) are attempting to distribute affordable bicycles throughout the country. Steps to increase bicycle distribution include:

- Expand the current Shova Kalula project to more areas in South Africa and monitor its roll-out.
- Work with the private sector, NGO's and communities to develop additional bicycle distribution programmes and options.

Modify Institutional Structure to support NMT Implementation

Currently, the lack of a single point of responsibility within local government that is responsible for NMT planning, implementation and maintenance is problematic. As part of this package of catalytic interventions it is proposed that the body accountable for public transport operations and maintenance should include the operations and maintenance of NMT priority routes.

NMT Interventions in Rural Areas

The majority of rural people walk long distances to access public transport or directly to school, employment, etc.

The availability of some form of rural public transport service combined with good NMT linkages to it, can improve accessibility to service centres and nodes as identified in the draft Rural Transport Strategy of SA.

Education campaigns to further the role of NMT in rural areas are of vital importance. The implications of cultural considerations and gender stereotyping and its impact on NMT usage should not be overlooked. Educational campaigns should be developed that clearly address these issues.

The impact of transport on the mobility of women and children in rural areas and its impact on the general socio-economic conditions, including health, should also be clearly understood. Steps to improve NMT in a rural context should include the following:

- Undertake strategic NMT planning at a district and municipal town level.
- Identify priority rural-based and town-based projects that will maximise mobility improvements.
- Ensure job creation opportunities are maximised through the implementation and operation of NMT services and infrastructure.

Costing of first phase NMT implementation package Metro/City NMT Package

It is recommended that the implementation of a transport authority NMT package include the full spectrum of actions for the four years of Phase 1 (2007-2010). This includes full planning of the area at a strategic metropolitan or regional level as well as planning of the NMT associated with the rapid public transport corridors. It also includes undertaking detailed plans for two local areas, a special pilot project such as a bicycle rental or taxi service and a study to investigate institutional issues around planning, implementation and maintenance for NMT.

The initial package of infrastructure and design improvements assumes that for every km of rapid public transport, twice as many kms of NMT connections will be built. Therefore, if 2 corridors of 25km are constructed, 100km of NMT routes will be built. This will include the pathways, sidewalks, crossing, lighting and landscaping. In addition, two local areas will be improved by implementing a network of NMT infrastructure.

Table: Cost Estimates for Phase 1 Metro/City NMT Package (total over 4 years)

NMT Implementation Element	Unit Costs	Units	TOTALS
<u>Planning</u>			R 1,450,000
Strategic Planning	R 500,000	1 Plan	R 500,000
Rapid Public Transport Corridors (part of corridor planning budget)	-		
Local Area Plans per plan	R 200,000	2 Plans	R 400,000
Special Project (bicycle rental, taxi or service center)	R 250,000	1 Project	R 250,000
Institutional restructuring	R 300,000	1 Plan	R 300,000
<u>Infrastructure and Design</u>			R 200,000,000
Pilot Public Transport Corridors (2 x 25km)	R 1,000,000	100 km	R 100,000,000
Local Area "Pocket"(CBD & Neighbourhood)	R 50,000,000	2 Local Areas	R 100,000,000
<u>Special Project Implementation</u>			R 1,000,000
Bicycle Rental, Bicycle taxi or service center	R 1,000,000	1 project	R 1,000,000
<u>Other Supporting Activities</u>			R 5,200,000
Marketing and Awareness	R 4,000,000	1 campaign	R 4,000,000
Bicycle distribution	R 300,000	per year	R 1,200,000
TOTAL Metro/City Phase 1 Package			R 207,650,000

Note: Costs are estimates that will need to be refined with more detailed planning

- Provision has also been made for a special project such as a bicycle rental or bicycle taxi scheme. These provide good NMT feeder alternatives to the IRPTN.
- A marketing campaign has been included (that should be targeted at commuters and scholars) of approximately R1million per year for the four years. This includes printing media and cost of a media company.
- Increasing the number of bicycles in an area will support the use of bicycles on the infrastructure that will be constructed in this first phase. Funding has been allocated for a distribution project in the functional area package of approximately 300 bicycles each over 4 years. This modest package could easily be scaled up 10 fold if required to 3000 bicycles per year.
- The total package for a functional area is estimated to be just over R200 million.

District NMT Package

It is recommended that the implementation of a district NMT package include the full spectrum of actions for the four years of Phase 1 (2007-2010), but exclude specialized infrastructure linked to functional area based IRPTNs. The package includes full functional area planning of the area at a strategic district and municipal level.

Table: Estimated Cost for Phase 1 District NMT Package (total over 4 years)

NMT Implementation Element	Unit Costs	Units	TOTALS
<u>Planning</u>			<u>R 3,250,000</u>
Strategic Planning for District (assumes 5 municipalities plus district)	R 500,000	1 Plan	R 3,000,000
Institutional restructuring & maintenance plan	R 250,000	1 Plan	R 250,000
<u>Infrastructure and Design</u>			<u>R 150,000,000</u>
Local Area "Pocket"(town)	R 50,000,000	2 Local Areas	R 100,000,000
Rural NMT Improvements	R 10,000,000	5 projects	R 50,000,000
<u>Special Project Implementation</u>			<u>R 3,000,000</u>
Safer journeys to school	R 3,000,000	3 projects	R 3,000,000
<u>Other Supporting Activities</u>			<u>R 6,400,000</u>
Marketing and Awareness	R 4,000,000	1 campaign	R 4,000,000
Bicycle distribution	R 600,000	600 per yr	R 2,400,000
TOTAL District/Rural Phase 1 Package			<u>R 162,650,000</u>

Note: Costs are estimates and will need to be verified with more detailed planning

- Costs have been included for infrastructure and design projects in two towns and five rural projects. These projects would include sidewalks, lighting, landscaping, public transport stop improvements, etc.
- Provision has been made for special projects could be focused around improving the safety of routes for scholars in the district.
- A marketing campaign has been included in the package (R1million per year over the next four years).
- Distribution of bicycles is important in the rural areas at least 600 per year will need to be incorporated. This can be scaled up to 6000 per year if required.
- The total district/rural phase 1 package is just over R162 million over the next four years.

Next steps

This initial draft of the NMT Action Plan has attempted to summarise the actions required to implement NMT as part of the IRTPN. Refinement of the NMT component of the Action Plan will need to take place, which would include the following actions:

- Consultation with broader stakeholders including local authorities and provinces.
- Commissioning of planning studies for the respective areas.
- Incorporation of project lists, budgets and phasing into municipal ITPs.
- Discussion of funding sources to secure funding for first phase as well as more long-term funding for future phases of NMT implementation.
- Refinement of financial plan and phasing of projects based on secured funding.

To ensure that the NMT Action Plan is not simply another planning document, the next steps will need to include:

- Political support for delivery of the NMT component of the IRPTN.
- Development of project briefs and procurement of services initiated on priority projects and project managed to completion.
- Adherence to implementation timeframes and budgeted funding.
- Placement of accountability with officials for specific projects, whose progress is monitored and attached to performance management.

Some of the priority issues that have been identified as serious constraints to successful NMT delivery as part of the IRTPN include:

- An ineffective current institutional structure that requires restructuring to enable successful delivery,
- A serious lack of capacity and expertise for NMT delivery at all levels of government,
- The definition and securing of funding over long-term project cycles,

NMT plays a vital role in the country despite a lack investment. It is important that Phase 1 improvements are implemented as rapidly as possible, with the recognition that certain elements require detailed planning.

12. LINKAGE WITH LONG DISTANCE PUBLIC TRANSPORT SERVICES

Part One highlights the challenges of long distance public transport travel demands.

Proposed action steps over the Phase 1 period include:

- Finalise business plan for Shosholoza Meyl long distance rail service and develop investment plan that increases capacity, expands services and attracts new users.
- Finalise strategic demand and supply profiling of the major long distance road corridors in order to develop a data-driven basis on which to plan infrastructure, facilities and operations.
- Long distance plan to also inform the provincial Operating Licence Boards with regard to issuing licences based on need.
- Need to review and streamline the licensing and regulatory issues that affect long distance operations – especially with the likely increased demand in coach travel due to tourism and the 2010 World Cup.
- Need to tailor the Taxi Recapitalisation Project to explore innovative partnerships with the industry in order to upgrade current long distance minibuses into midi-bus and standard size coach operations (up to semi-luxury standards)
- In the medium term, plan for the introduction of scheduled services on high volume routes
- Improved long distance road and rail terminals that are integrated with the IRPTNS in each city and district.

To achieve these action steps, the DoT implementation team will develop a specialised focus on long distance public transport and will actively co-ordinate the provinces, municipalities, Operating Licence Boards, Cross Border Road Transport Authority, Road Traffic Management Corporation, tourism stakeholders as well as mini-bus, bus and coach operators.

Due to the peak periods for long distance travel demand, particularly by migrant workers, road based transport leads to challenges of long driving hours, poor facilities at stops and impacts on the roads safety. Thus in these circumstances long distance rail will be promoted and complemented with road based connectivity to meet the passenger needs. The following issues will be addressed:

- Upgrade Shosholoza Meyl locomotives and carriages
- Negotiate improved access to rail lines for Shosholoza Meyl services due to shared infrastructure thus creating a balance between freight and passenger services, and to prioritise passenger services during peak periods
- Introduce new services where services have been scaled down
- Introduce measures that would make long distance passenger rail competitive with road based long distance services

Long distance bus and minibus services will be introduced to service areas where rail is non-existent or is not viable due to very poor demand. These road based services will also complement and support nodal points on the IRPTN as well as provide a feeder and distribution service in rural districts.

Minimum service standards will be developed for long distance road and rail services which will ensure certainty for users and enhance access between rural districts and the urban areas. This will include facilities for long distance services.

C. BUILDING CAPABILITIES FOR SUSTAINABLE IMPLEMENTATION OF INTEGRATED RAPID PUBLIC TRANSPORT NETWORKS

13. INDUSTRY SUPPLY CHALLENGES IN A FAST GROWING ECONOMY

Manufacturing Capacity In The Public Transport Sector

Based on the draft Public Transport Strategy's call for IRPTNs, the following overview of the public transport-related supply industries was undertaken. At the outset, it should be noted that this area will require ongoing attention during the rollout of Phase 1 and the DoT will work closely with the DTI and public transport sector stakeholders to ensure that the implementation effort is co-ordinated with upstream supply constraints as well as downstream opportunities to maximise local content and job creation.

RAIL

The Consolidated Regional Rail Plans were approved by Cabinet in December 2006 and the infrastructure and rolling stock requirements.

Rolling Stock

In order to place commuter rail services on the recovery trajectory the following table illustrates the minimum number of coaches that need to go through the General Overhaul (GO)/ Upgrading programme

Years	Qty Coaches for Recovery program	Funding requirement 'R Million
2006/07	473	1,370
2007/08	481	1,863
2008/09	483	2,099
2009/10	483	2,225
2010/11	483	2,232

The capacity for meeting the rolling stock requirements the short term is deemed to be sufficient. This sector of the market is supplied by the following manufacturers:

- Union Carriage and Coaches
- Transwerk
- Commuter Transport Engineering
- Victra

Within the current MTEF capital allocation for commuter rail it assumed that 80% of available capital would be allocated to Rolling Stock.

Funding (Include VAT)	2006/07 'R Million	2007/08 'R Million	2008/09 'R Million
SARCC Capital Grant	1,030	1,516	2,018
Expected 80% RS allocation	824	1,213	1,614

The capacity is sufficient to cope with the GO/Upgrading programme, however there is a need for new coaches to be introduced in the medium term as coaches reach the end of their economic lifespan.

By 2014 the goal is to enhance the SARCC fleet so that it comprises 2000 upgraded coaches and up to 2000 new coaches from 2010 to 2012. The estimated cost of 2000 new coaches is in the region of R20bn and discussions have already commenced with National Treasury as to funding options in this regard.

The technology for new rolling stock is not available locally, however local manufacturers will be in a position to assemble new coaches.

Infrastructure

There is sufficient capacity within the steel industry to provide for the rail tracks and local engineering firms have access to international technology in this field. Signalling systems are all fully imported as there is no manufacturing capacity in this area. Sufficient construction capacity is available for station upgrading locally.

Through the Economic Cluster and DTI led initiatives on capital goods development of local manufacturing will be developed

BUS

All bus chassis are imported and the bodies are manufactured and built on to the chassis in the country. The current production capacity is approximately 1200 busses per annum. Some of the bigger manufacturers include:

- Daimler Chrysler
- MAN
- SCANIA
- Volvo

There are currently 10 000 commuter buses (excluding municipal and long distance fleet), of which approximately 7 000 operate on subsidised contracts. The average price of a standard bus ranges from R700 000 to R1.2m per bus. As cities rollout BRT-type corridors the initial requirements for phase one will require an estimated additional 2500 buses coming into the system by 2010 (over and above the current annual sales of 1200 buses) at an estimated cost of approximately R3.5bn. It is estimated that the industry can indeed increase their manufacturing capacity to double current rates as their currently operating at over capacity

As long as the lead time of up to a year is borne in mind, there is sufficient capacity to meet the needs of Phase 1 IRPTN bus fleet expansion.

Infrastructure

The infrastructure requirements will be in the region of R10m per kilometer for a mass rapid transit system (BRT, with dedicated road space) this will include enclosed stops and intermodal terminals, depots, park and ride sites, etc. Potential construction industry bottlenecks could hamper the rollout – hence the need to complete detailed planning and design in 2007 and to move to procurement and construction.

Conclusion

As mentioned above, the DoT will work closely with the DTI to ensure that supply challenges are anticipated and managed during the Phase 1 implementation schedule. It is expected that this will require a specialist resource to firmly track supply industry dynamics.

14. ALIGNMENT WITH LAND USE AND HOUSING IMPLEMENTATION

The major thrust of the catalytic intervention is to make public transport “rapid”, frequent, comfortable and competitive with car travel both in terms of travel time and travel cost. The strategic public transport networks or IRPTN will provide accessible high frequency trunk services supported by integrated feeder and distributor services and networks.

The main difference between the IRPTN systems and historic public transport systems is that the latter networks were dense, but with very low frequencies and accordingly low quality services. While minibus-taxi services were and are frequent, they do not run to schedule and are unreliable, particularly for off-peak services. Such services do not shape the demand for land development and instead have tended to be reactive to market led urban land development. In contrast, the IRPTN will result in visible, fixed infrastructure and reliable scheduled services, creating accessibility for urban commuters and helping to shape the demand for land.

The IRPTN concept is sympathetic to the notion of corridor and node development which is a strong feature of the planning principles in the NLTTA and is incorporated in most metropolitan and urban Spatial Development Frameworks.

Hitherto, implementation of the corridor/node spatial strategy has relied on rather vague and imprecise zoning schemes, which have always been at the mercy of developer initiatives, mostly in areas of high car accessibility. This has resulted in urban sprawl and the resultant congestion has mitigated against effective road-based public transport.

At the same time, the historic rail systems have tended to repel car-based development because of the problems associated with crossing the rail reserves. This problem has impacted on accessibility for pedestrians as well as cars. Thus, car travel has proliferated and the resultant spatial development has marginalised train services and done little for road-based public transport because of the priority accorded to car movement.

The IRPTN catalytic initiative aims to change this by dedicating road space to a **‘closed and visible public transport system’** with an improved image.

Transport Authorities, led by the DoT will be required to support the IRPTN catalytic initiatives in respect of appropriate land use policies and strategies. The NLTTA (Section 29 (2)) binds all parties in respect of land use changes in conflict with the provisions of an ITP. Accordingly, the short-term actions by the DoT which will be necessary to support the IRPTN implementation are as follows:

In making infrastructure grants for the implementation of the IRPT networks (land acquisition, dedicated lanes, stations, loading platforms, coloured asphalt surfacing, kerb barriers, shelter, road-markings and signals etc.) set conditions pertaining to qualification for the grants in terms of:

- land use and density zoning changes on land within (say) 500 metres of the busway/railway including floor space ratio (bulk) residential and commercial mix;
- conditions for rezoning applications; and
- developer contributions for increase of bulk or enhanced zoning;

Review and amend parking policies and standards to introduce new concepts such as maximum parking spaces per unit of area (instead of minimum spaces), levies on parking spaces within the stipulated 500 metre zone and other policies to be evaluated in terms of their ability to effect behaviour change and support the public transport initiative;

Introduce public spaces and facilities both in the street reserve and on adjacent land which are supportive of the effort to promote public transport. These will include, but are not limited to:

- pedestrian and cycle facilities
- pedestrian access tracks;
- commuter rest areas;
- information kiosks; and
- toilets and other amenities including ticket or information booths.

In the medium and longer term the main task of the DoT and Transport Authorities will be to ensure that the public transport right of way (the IRPTN Reserve) is landscaped and maintained at a standard which will be attractive, safe and secure for users. This will mean that the IRPTN system will stand out like a beacon attracting users to a safe and legible movement system.

In the course of time, maintenance will become the most important capital outlay and one which will be vital in establishing the “public transport footprint” on the city.

The DoT will actively co-ordinate with the Departments of Housing, Land Affairs and Provincial and Local Government with regard to the implementation of IRPTNs. A similar process will be facilitated at the provincial and municipal spheres.

The high quality IRPTNs in the cities have the potential for transport to become a catalyst for land use densification along corridors. This is especially the case where trunk road and rail lines intersect at sites that have the potential to become major multi-purpose and mixed use nodes and destinations in their own right.

15. INSTITUTIONAL FRAMEWORK FOR INTEGRATED RAPID PUBLIC TRANSPORT NETWORKS

INSTITUTIONAL FRAMEWORK

Key, institutionally driven, success factors

New and ongoing expenditure on public transport is critical if *Integrated Rapid Public Transport Networks* in the larger urban areas, and adequate linkages in the rural areas, are to be successfully established. However, it is easy to waste considerable resources on public transport without achieving desired objectives. Success is dependent upon many different elements, which tend to be determined largely by institutional factors. Key considerations include the following:

- Clarity of accountability
- Integration of land use planning with transport
- Effective integration of public transport modes
- The right business model based on competition for the public transport market but not in the public transport market
- Safety, security and effective enforcement
- Pro-active maintenance
- Sufficient, reliable, predictable financial streams

The need for urban public transport networks

For urban public transport, there has, for some time, been fairly wide acceptance of the need to establish the cities as the key locus of responsibility. The cities have responsibility for the management of urban space and flows; they are responsible for the crucial land use planning issues, which are critically linked to urban public transport provision.

The recently established Public Transport Infrastructure and Systems Fund (PTIF), which provides funding mainly to municipalities for the purposes of public transport investments is contributing positively to this. Yet responsibility has until now remained severely fragmented in crucial respects.

While cities are responsible for the management of urban space, including the overall planning function, are in charge of most bus and taxi interchanges, and have considerable responsibility around the maintenance and management of local roads,

- The commuter rail system is the responsibility of the South African Rail Commuter Corporation – recently amalgamated with Metrorail, and falling under the national Department of Transport.
- National government is responsible for the provision of bus subsidies, but manages this through the provinces. Managing the bus subsidy effectively implies designing bus contracts appropriately. Thus, one of the crucial elements in managing public transport operations, ensuring modal integration, and strengthening the cities' densification and corridor-led spatial development frameworks lies not with the cities, but jointly with provincial and national government. Current work being done in this area appears to take little account of the rail system. There are some areas where subsidised buses run along the same routes as municipal bus services
- Taxi licenses and permits to service particular routes are a responsibility of provincial government, although provinces are supposed to take local government recommendations into consideration when issuing licences and permits. Provincial

Government responsibilities also include functional area planning that goes beyond municipal boundaries

- Local government has little jurisdiction over national and provincial roads within its area although many of the routes most critical to intra-metropolitan movement are the national and provincial roads within metropolitan boundaries. Planning for the role of these routes in facilitating intra-metropolitan movement is significantly under-emphasised. This is exacerbated by moves to toll such roads, even within major metropolitan areas.

The role of Transport Authorities

The National Land Transport Transition Act (No. 22 of 2000) recognised the need to address the problem of institutional fragmentation, and thus placed significant emphasis on the creation of Transport Authorities, which it envisages as creating a focused institutional structure aimed at overcoming fragmentation and managing transport in an integrated manner.

Section 10(3) reads

Transport Authorities may be established if their effect is to improve transport service delivery in the local sphere of government by grouping transport functions into a single, well-managed and focused institutional structure.

A few municipalities have thus established or are considering establishing Transport Authorities. However, legislative developments and boundary changes since the Act was passed have somewhat changed the context from that in which the Act was initially conceived.

Prior to local elections in December 2000, the local system was more fragmented than it is at present. Two tier systems of local government existed in the metropolitan areas, with transport related responsibilities differentially distributed across them. Thus the legislation offered a means for achieving greater coherence within this context. Since the creation of single tier metropolitan government, the rationale for forming Transport Authorities has diminished considerably, although there may remain some motivation for considering such an approach to address the city region issues as in Gauteng.

The Transport Authorities were intended not only to unify the previously fragmented local system, but also to address some of the dispersion of responsibilities amongst the spheres. However, a Transport Authority is not a sphere of government. Thus, notwithstanding the wording of section 10(13) of the NLTAA, unlike a sphere of government, it cannot be assigned any functions (In terms of recently adopted official terminology, assignment of a function to a body means the transfer of full responsibility for that function to that body) , but can only carry out functions on behalf of one or more spheres of government.

It is also unclear how asset ownership and funding is dealt with. External Transport Authorities, created in terms of the NLTAA, cannot have original revenue raising powers, and thus can have little ultimate authority over transport. They are dependent upon other spheres of government for their finance.

It follows that in the absence of a coherent assignment of functions amongst the spheres the establishment of a Transport Authority may not diminish fragmentation. Indeed, it could even exacerbate it, with all spheres ultimately seeking to exercise authority over the Transport Authority.

Where a Transport Authority is established internally, within the municipality, some of these matters are more easily addressed. The NLTTA envisaged the creation of Transport Authorities as a body to which various responsibilities could be given, even if this was not to be a functional assignment. The National Land Transport Transition Amendment Bill widens the range of entities to which responsibilities can be given, including, in particular, metropolitan municipalities.

The municipalities where the motivation for the formation of Transport Authorities is now probably strongest are the large category B municipalities, such as Buffalo City Municipality. In contrast with metropolitan municipalities, they do not receive powers automatically. However, by forming internal Transport Authorities they would be placed substantially in the same position as metropolitan governments in terms of the amended NLTTA.

Institutional way ahead

Achieving the ambitious goal of Integrated Networks is going to require an institutional framework that facilitates implementation. In this regard the Action Plan proposes a phased establishment of transport authorities that are able to plan, manage and regulate a Network in which the municipality is responsible for the fare revenue and operators are contracted to provide particular services in terms of the Network Plan. There should be a programme for capacity building for the transport authorities while at the same ensuring that the capabilities and benefits intergovernmental coordination in implementing the action plan will be necessary. The role of the provinces in establishing transport authorities is critical especially in ensuring that the authority focuses on the transport functional area and not restricting itself to political boundaries. The provincial guidance and linkages to the national imperatives would make it imperative to approach planning and implementation through intergovernmental coordination, that would support the transport authorities and local authorities in giving effect to the Action Plan.

In charting a way ahead, within the metropolitan areas and large secondary cities there is a need to:

- Establish intergovernmental coordinating structures to assist transport authorities in planning and implementation.
- Establish and implement *Integrated Rapid Public Transport Networks*
- Work with key stakeholders including the provinces, municipalities and National Treasury to build the relevant technical and financial capacity to implement
- Engage with provinces and Category A, B and C municipalities in order to establish a feasible approach to the provision of public transport outside the main urban centres in functional areas
- Develop a short, medium and long term approach to the financing of public transport within the context of South Africa's overall approach to fiscal decentralisation –
- Short term - Retain current monthly extensions of contracts on existing basis until new contracting basis is defined, Phase out current subsidy contracts, Phase in new contract approach, Fund infrastructure from PTIF and own municipal revenues.
- Long term - Shift responsibility for revenue raising and other key financing choices to the local sphere as much as is as feasible, Establish sound own revenue instruments.

D. FACILITATING PHASE 1 RURAL DISTRICT IMPLEMENTATION

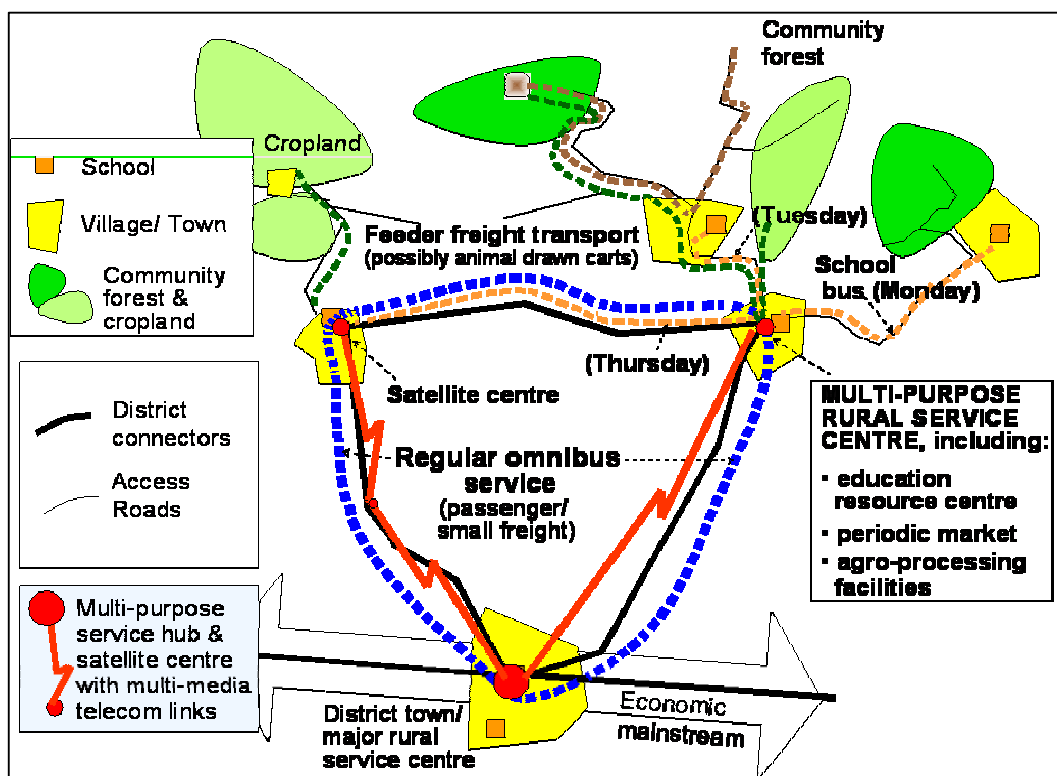
16. RURAL TRANSPORT CONCEPT PLAN FOR 6 DISTRICT MUNICIPALITIES: PHASE 1 (2007-2010)

Rural areas in Africa in general and also in South Africa are going through a process of economic and social restructuring, partly characterised by de-agrarianisation and diversification of livelihood strategies. Poor people's livelihoods increasingly straddle rural and urban locations, and the significance of rural trade and agro-processing is growing.

Accompanying this is an emerging transport service sector, connecting the rural trade centres or satellites to other higher order settlements within a region. In many cases however, transport links between the rural trade centres and the rural hinterland remains extremely unreliable, rendering access to services and emerging opportunities difficult, and thereby trapping communities in downward spiralling poverty

Against this background, the Department of Transport (DOT) developed a rural transport strategy whose fulcrum is the introduction of a suite of innovative interventions - packaged as the Integrated Rural Mobility and Access (IRMA) project. The Integrated Rapid Public Transport Network Rollout (IRPTN) in six district municipalities will therefore be defined within the IRMA framework, which is already an implementation programme of the Department of Transport.

The Rural Transport Strategy for South Africa (RTSSA) specifically indicates a need to "move beyond roads" and start exploring innovative and/or integrated interventions to address rural access and mobility needs in a sustainable manner. The figure below illustrates the original guiding concept that underpins South Africa's Rural Transport Strategy.



The Rural Transport Strategy Concept Diagram

The diagram illustrates the typical South African rural context of:

- A district town linked to the “economic mainstream”.
- A poorly connected set of villages and hinterlands with under-utilised human capital and physical resources (e.g. croplands or community forests).

In order to test this conceptual framework, the Department of Transport (DOT) initiated pre-implementation studies as a basis for implementing the RTSSA, under the banner of the ***Integrated Rural Mobility and Access (IRMA)*** demonstration projects.

These studies and projects will be rolled out as part of the department’s “Public Transport Action Plan” (Phase 1: 2007-2010) in six key district municipalities (DM) that have been identified.

These DM’s are spread across six of South Africa’s nine provinces. They form part of Governments *Integrated Sustainable Rural Development Programme (ISRDP)* and some already include the Department of Transport’s IRMA programme of action sites. These district municipalities - in terms of the National Spatial Development Perspective (NSDP) - are characterised as areas with a high social need index and simultaneously (in many instances) areas of developmental potential or in close proximity to economic opportunities. The six “rural” districts are (See Figure below)

- Sekhukhune District Municipality, in Limpopo Province;
- OR Tambo District Municipality, in Eastern Cape Province;
- Umkhanyakude District Municipality, in KwaZulu-Natal Province;
- Ehlanzeni District Municipality, in Mpumalanga Province;
- Thabo Mofutsanyane District Municipality, in Free State Province, and
- Kgalagadi District Municipality, in the Northern Cape Province.
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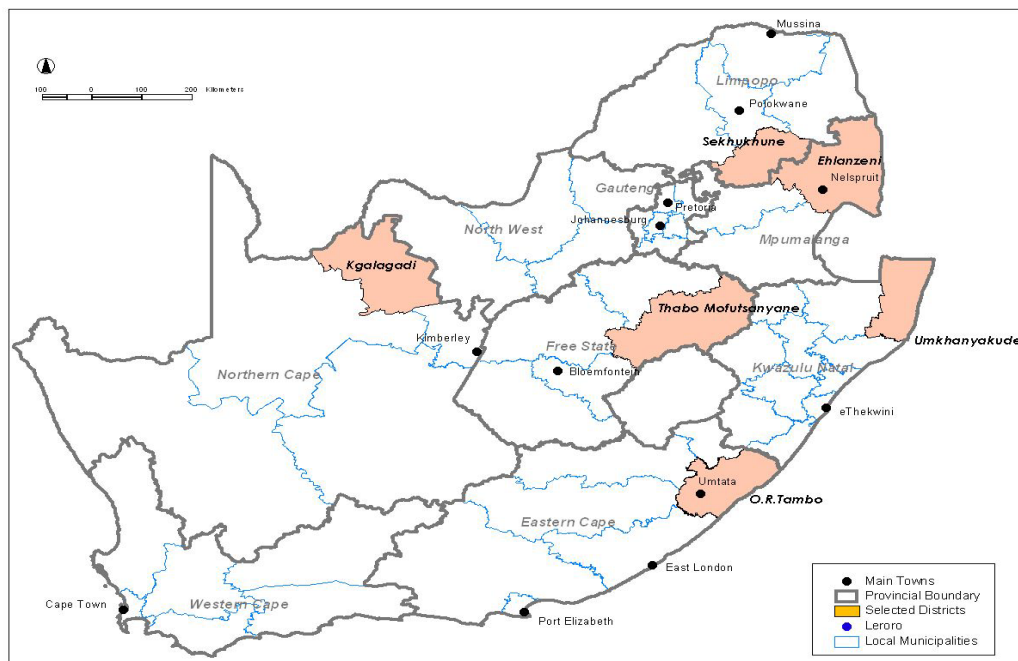


Figure: The Six District Municipalities Earmarked for Rural Public Transport Action Plans and Interventions for Phase 1 ((2007-2010)

IRMA STUDY APPROACH AND METHODOLOGY

Despite road infrastructure investments, rural communities are still marginalised and cut-off from full participation in the economic mainstream. Rural communities share significant accessibility and scale-related development problems that are fundamentally due to their physical isolation from one another and from the economic mainstream.

As can be expected, these problems tend to worsen dramatically where roads are poor, and the majority of the population does not have access to affordable means of transport and communication.

In view of the foregoing challenges, the study focused on assembling information and ideas that would enable delivery of three key outputs in the identified rural development nodes, namely:

- Improved passenger transport services
- An environment conducive to the mainstreaming of non-motorised and other low technology transportation solutions, and
- Development of freight and logistical support in a developing economy.

The figure below summarises the four main implementation focus areas, broadly differentiated in terms of “community-scale interventions”, and “district and wider area interventions”.

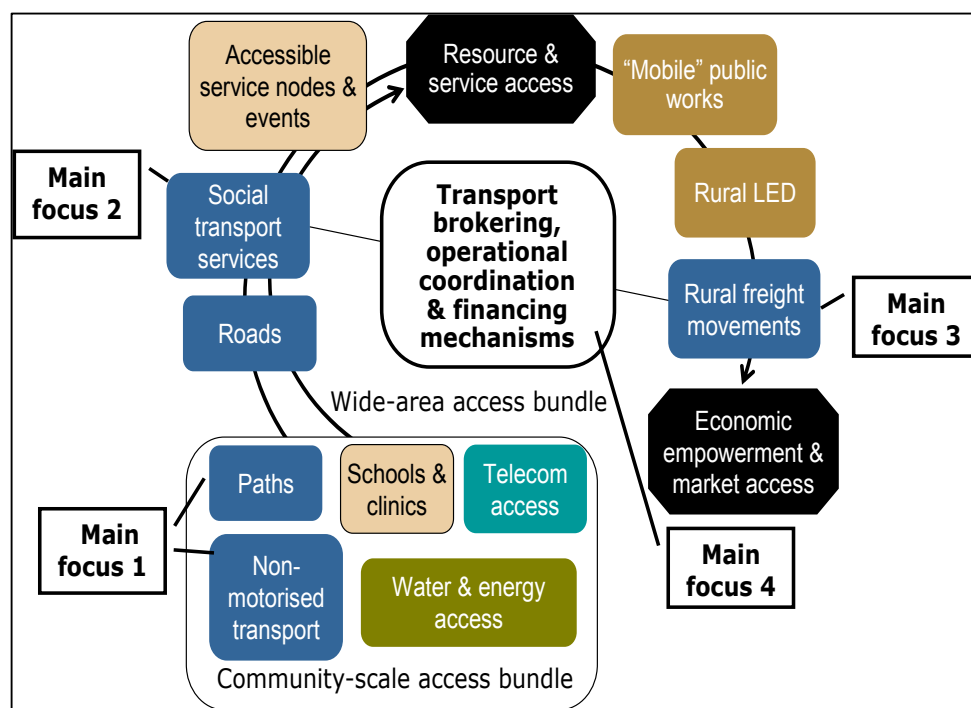


Figure 3: Key Rural Accessibility Interventions

In terms of facilitating a catalytic integrated rapid public transport network project in the identified district municipalities, it is proposed that a rapid situational analysis be conducted first, where data will be collected through interviews, site visits, workshops, discussions, stakeholder mobilisation and analysis of key strategic documents.

Accordingly, IRMA projects will be formulated, in collaboration with relevant provincial, municipal and other stakeholders. One of the main purposes of these meetings will be to consult stakeholders on priorities of local focus areas within the different nodes. This process will be guided by a set of spatial prioritisation criteria:

- Types of settlements (i.e. deep rural, clustered, farming or mining areas, etc)
- Average travelling distance
- Existence of public transport
- Existence of non-motorised transport
- Basic minimum level of infrastructure
- Cell phone signal coverage
- Dominant economic activities
- Local municipality support and understanding (capacity)

TYPICAL “RURAL” DISTRICT MUNICIPAL STUDY OBJECTIVES

The typical study objectives will focus on delivering three key outputs in the identified rural development nodes, namely:

- Seeking innovative ways of improving passenger transport services (enhanced, strategic road connectivity and/or mobility);
- Assessing the feasibility of mainstreaming non-motorised transportation;
- Enhanced human capacities, interfaces and e-entrepreneurships;
- Enhanced digital connectivity and collaborations (including initiatives such as SMME cluster and network development, or the establishment of local innovation networks)
- Seeking innovative ways of moving people and their goods (freight and logistical support)

With regard to freight and rural logistics, for example, the first key objective of the situational analysis is to assess key inward, local and outward logistics movements.

This included seeking to understand:

- The relevant supply chains [as indicated above]
- The stakeholders that are involved
- The costs that are incurred at each stage of the supply chain
- Major issues [such as information or market barriers], and
- The options for cost-reducing and/or value adding logistics and supply chain improvements.

The second strategic objective was to engage LDV operators, other truck or freight transport operators, and the suppliers of parcel services in a discussion about:

- Their current services and pricing regimes
- How they can be empowered to improve the cost-effectiveness of current services and/or produce a wider range of logistical services.

The third objective was to involve both the users and the suppliers in a discussion about logistics improvement options. Respondents were asked, for example, under what circumstances they would be willing to use third party or support services (such as can be provided by informal cell-phone networks or a centre such as Tombo).

The fourth objective was to seek to assess the extent and composition of local or periodic market activity, especially the activities that occur in association with pension pay-out events as well as exploring the potential scope for interventions [e.g. better storage facilities for perishable products; depots for maize and related products; retention/strengthening of periodic market system; logistics brokering possibly involving Multi Purpose Community Centres and a network of local agents].

With regard to public transportation, the main objectives were to seek to understand the existing situation, investigate the gaps with a view to generating interventions options covering both motorised and non-motorised transport.

INDICATIVE STRATEGIC INTERVENTION FRAMEWORK

The intervention plan must be strategic, unlocking the development potential of the district and linking it to markets and higher order services. An indicative strategic intervention plan in rural areas will therefore establish *rural accessibility and collaborative needs (RACN)*, stemming concomitantly from the above objectives, as its general framework of departure. On the one hand *rural accessibility* seeks to overcome problems of rural isolation and immobility such as inadequate or costly physical and digital access to services, information, peers and markets. *Collaborations needs*, on the other hand, seeks to overcome - scale-related problems (small enterprise sizes and low rural demand & supply chain volumes), limited local human capabilities, and uncoordinated rural development planning & service delivery.

The intervention framework will accordingly comprise the following outputs:

- An IRMA implementation consisting of a detailed RACN analysis of the district municipality, a strategic integrated spatial development framework; and a prioritised list of project and programme designs;
- A list of key access road connection to improve passenger transport; fundamentally support of this construction programme is a maintenance allocation for recently constructed roads (e.g. the Amadiba road situation);
- Rolling out and mainstreaming particularly in terms of rural scholar transport a bicycles and ensuring other NMT infrastructure spot improvements (e.g. path formation; drainage; etc.);
- Developing and conducting an institutional and human capacity development programme that specifically a) improves the spatial and institutional organisation of the service delivery network and b) enhance existing service linkages and operations;
- In light of enhanced digital connectivity opportunities to establish e-enables SMME cluster and networks, and promote local innovation networks;
- Establishing initiatives around freight and logistical support, which includes expanding LDV operators, other truck or freight transport operators, and the suppliers of parcel service; of establishing hub satellite operations - linking to Multi-Purpose Community Centres (MPCC) and establishing "rural SMME related" call and service centres.

INDICATIVE IRMA BUDGET FOR ONE DISTRICT MUNICIPALITY:

Assuming that each of the six district municipalities would have similar intervention project and programme framework, then the envisaged budget below for the six district municipalities can be multiplied by 6 to give an estimate for this Action Plan. The table below outlines broadly the indicative budget:

INDICATIVE IRMA BUDGET FOR ONE RURAL DISTRICT MUNICIPALITY					
STRATEGIC INTERVENTIONS	Year 1	Year 2	Year 3	Year 4	TOTAL
A detailed RACN analysis of the district municipality	R 3 M	R .5 M	R .7 M	R 1 M	R 5.2 M
Key access road connection	R 6 M	R 6 M	R 7 M		R 19 M
Maintenance and operations	R 3 M	R 3 M	R 3 M	R 3 M	R 12 M
Ensuring NMT infrastructure	R 6 M	R 6 M	R 6 M	R 6 M	R 24 M
Human capacity development programmes	R 2 M	R 2.5M	R 3 M	R 5 M	R 12.5 M

E-enables SMME cluster and networks	R 3 M	R 3 M	R 2 M	R 5 M	R 13 M
Rural freight and logistical support	R 2 M	R 4 M	R 3.3 M	R 5 M	R 14.3 M
Total	R 25 M	R 25 M	R 25 M	R 25 M	R 100 M

CONCLUSION

A critical missing element in the current Rural Strategy work is the planning of a periodic scheduled district public transport service that is contracted by the municipality and which is required to provide a basic and affordable weekly mobility service that meets local demands. This will form the rural version of the IRPTN. The DoT will prioritise the development of these District IRPTN operational plans in 2007 and this will be used to inform the Phase 1 costing for 6 districts. The current estimate (to be finalised in 2007) for the total 6 district Phase 1 package is R3bn and this includes the basic IRMA interventions, high quality NMT networks as well as rural IRPTNs.

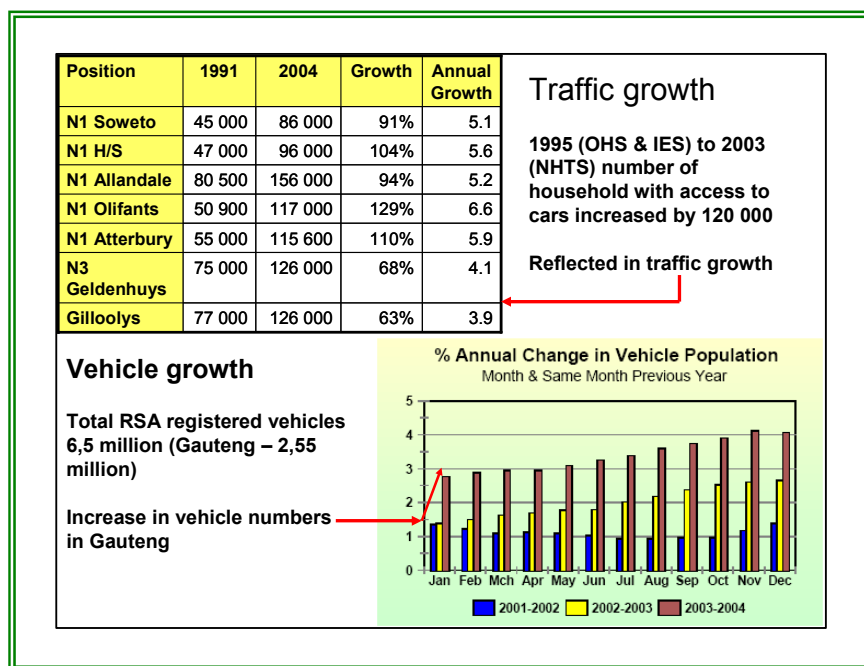
The use of demonstration projects to test and validate the intervention options is proposed. Institutionally, it is of interest to note that the notion of employing nodes and linkages (including communications) to assist in focusing development efforts is already entrenched in both the national and provincial rural transport strategies. Given that the Integrated Development Planning (IDP) process has been designated as the nerve centre for coordinated service delivery, the demonstration project would need to be inducted into the IDP processes of the six Districts and their local municipalities. The developmental effect of these interventions would clearly provide a catalytic impetus to rural development and the achievement of the Millennium Development Goals in South Africa.

E. INTEGRATED PUBLIC TRANSPORT NETWORKS AS AN ALTERNATIVE SOLUTION TO URBAN CONGESTION

17. IMPLICATIONS FOR CAR USE TRAVEL DEMAND MANAGEMENT AND FREEWAY/ROAD SUPPLY EXPANSION

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As highlighted in the draft Public Transport Strategy, metropolitan municipalities are facing increasing pressure to expand road supply on freeways and suburban arterials due to the growth in car use – especially during peak periods. The figure below summarises traffic and vehicle growth in Gauteng from the 1990s.



The transport sector in the three spheres of Government is slowly undertaking a paradigm shift away from road expansion solutions and towards Integrated Rapid Public Transport Network alternatives (including the use of Non Motorised modes and Metered Taxis) coupled with a Travel Demand Management approach that aims to discourage inefficient car use and parking demand through incentives and penalties with regard to pricing, roadspace priority, and dedicated facilities.

However, this paradigm shift is more rhetoric than reality at the moment and recently announced suburban road expansion initiatives like the R350m project in Menlyn, Pretoria (see figure on right) and the proposals to expand urban freeway capacity in Gauteng, Cape Town and eThekweni - border on simply providing roadspace to relatively wealthy, well served and inefficient users of roadspace, while roads in underserved areas are still poor. Road supply and parking solutions in well served suburbs simply



exacerbates the dispersion of cities and generates increased traffic volumes and distances which further undermines the attractiveness and viability of public transport, walking and cycling.

Car oriented cities require massive space for roads and parking. The demand for parking at major nodes can be reduced if adequate high capacity IRPTN services support these nodes. For example, the Dube Trade Port facility should have high capacity PT services planned up front by the municipality in order to maximise access and minimise traffic. Parking provision at South African airports is extremely high when compared to international norms. Ratios in excess of 1000 bays per 1 million airline passengers per annum are provided at Oliver Tambo International Airport. Other South African airports are also at more than 900 bays/1 million pax/pa. In contrast the norm in the United Kingdom is less than 500 bays/1 million pax/pa.

IMPLEMENTATION RESPONSE

The call for IRPTNs in the Action Plan forms the platform (that will be phased in from 2007-2020) on which to target a shift of 20% of current metropolitan car users (for the trip to work) to switch to public transport. This means that the quality of the network services that are designed and implemented in 2007 needs to aim to be car competitive in order to retain existing public transport users firstly and secondly, to attract a portion of current car users.

In 2003, 74% of South Africa's households lacked access to a car including over 60% on metropolitan households. It is imperative therefore that the country acts quickly to put in place alternatives as it will be much harder to make public transport viable and attractive when 60% of metropolitan households can access a car as, opposed to the roughly 40% currently.

The Action Plan calls for the following steps:

- DoT is to finalise and release its Travel Demand Management Strategy in 2007.
- Specialised support is to be provided to especially metropolitan cities with regard to ensuring that their IRPTNs are designed to be car competitive and also to develop local plans to phase in car use and parking disincentives.
- DoT is to co-ordinate roads authorities and transport departments in the three spheres of Government with regard to implementing integrated alternatives (include both infrastructure and operations) to suburban road expansion.
- The work done in amending the Gauteng Freeway Scheme proposal to include provision for public transport and high occupancy vehicle (HOV) priority is a step in the right direction. Follow through is now needed to ensure integration with the Tshwane and Johannesburg IRPTN plans, and also to ensure that solutions include operational elements such as park and ride facilities, marketing, and high quality public transport services.
- DoT to promote a flagship catalytic IRPTN initiative that focuses on the full scale implementation of a rapid dedicated public transport alternative to car commuting. Possibilities include the N1 in Cape Town and the N1-M1 in Gauteng between Tshwane and Johannesburg.
- Regional planning will integrate the IRPTN and the freeway network and emphasis should be placed on the interfaces where these networks intersect
- HOV lane implementation will be encouraged, but with due care to ensure adequate traffic law enforcement is in place to ensure sustainable implementation
- DoT to establish a specialised unit to ensure that car use demand management is actively implemented by roads and transport authorities.

F. CONCLUSION

18. NEXT STEPS

This Action Plan aimed to assess the potential for Integrated Rapid Public Transport Networks (IRPTNs) in up to 12 cities and 6 districts in the Phase 1 and 2 period from 2007-2014. In this regard the Plan views the municipality (and its robust IRPTN Plan) as the integrating institution that brings together elements such as: the Rail Plan priority corridors, BRT-type road corridors, Non Motorised and Public Space facilities and services, 2010 Legacy interventions, Car use management and Integration with Land Use and Housing.

This Action Plan aims to create a bridge to enable the movement from Strategy to rapid Implementation. An initial assessment shows that 7 of the 12 cities and functional areas have commenced planning that is roughly aligned with the objective of Phase 1 IRPTNs. In addition, useful pre-implementation planning has commenced in at least the 3 districts that have been targeted as part of the Rural Transport Strategy piloting initiative.

The key challenge in 2007 is to ensure detailed implementation planning is finalised in - all 18 areas – and which is aligned with the Action Plan goals. This is going to require a serious effort and investment in capacity and resources among the three spheres of Government. Nevertheless, whilst ambitious, this is achievable.

While the funding requirements have been based on initial estimates, it is envisaged that once this Plan is approved, a round of detailed operational planning and costing will need to occur from March to July 2007. Following this, a detailed discussion with National Treasury and the transport sector in Government (led by the DoT) will establish the funding commitment to the Action Plan: Phase 1 targets.

The DoT will be required to gear up for the Phase 1 implementation effort. This will involve an integrated implementation unit that combines resources from the Public Transport, 2010 World Cup, Infrastructure, and Planning Divisions of the Department. A team of local experts will be commissioned to work with DoT staff in supporting provinces, cities and districts in terms of detailed operational planning.

Given the ground-breaking nature of IRPTNs in SA, and given the lack of local experience in designing high quality, car competitive rapid public transport networks – it is envisaged that the focused use of selected international design and operational experts will assist both the DoT and municipalities in fast tracking implementation in order to meet the 2010 Phase 1 deadline.

Finally, the move to intergovernmental task team for implementation and transport authority controlled networks (intergovernmental coordination) is going to require a major capacity enhancement and resourcing effort to build these capabilities to the point where they are able to effectively manage and monitor a network and contract with operators on a performance standards basis. In this regard, the DoT will work with other levels of government to map out a detailed institutional enhancement strategy that will be phased in from 2007-2010.

