

**Department of Transport and Public Works**



**Provincial Government Western Cape**

**Draft Non-motorised Transport in the Western Cape  
Strategy**

**July 2010**



Draft

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## Executive Summary

### Introduction

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It is the responsibility of the Provincial sphere of government to plan, co-ordinate and facilitate the land transport functions (NLTA Act 5 of 2009), and therefore the role of this provincial strategy is to guide the planning process so that local authorities are best able to make use of available mechanisms for implementation. This strategy identifies the current state of Non-Motorised Transport in the Western Cape and long-term objectives, while setting out the roles of various government spheres and institutions in achieving these objectives. It is the role of local and district municipalities to identify projects for consideration in planning and funding processes, and this strategy sets out the process for ensuring that NMT projects are aligned with government policy, including the support of public transport and the provision of affordable access to social and economic opportunities.

The strong emphasis on integration in the vision of the Provincial White Paper of 1997 requires an NMT system that promotes inclusion through affordable mobility. As different circumstances require different responses, this is a guiding framework for facilitating practical and implementable projects and programmes to meet the need for locally relevant projects.

### Situational Analysis

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The prevalence of walking and cycling varies considerably across the province, and depends very much on the availability of public transport and on the purpose of travel. Transportation projects should consider NMT as a matter of routine, and design should be based on needs identified through consultation in early planning stages. Facilities at destinations, as well as support programmes and services, are just as important as network projects.

NMT route facilities have been constructed in a number of urban and rural locations in the province, some serving specific users (such as scholars) or purposes (such as access to public transport) and others providing for general mobility in urban or rural areas. The range of facilities implemented around the province includes the following:

- Learner routes separated from traffic
- NMT as part of public transport corridors and access routes
- Off-road urban and rural pedestrian / cycle routes, including the use of public open space
- Pedestrian priority across streets for improved access to public transport interchanges

Buildings, sports facilities and other destinations are also locations where design can make NMT easier and safer.

The types and design of facilities will depend on the context, in terms not only of who the users are but also of whether the location is a city CBD, suburb, rural town or small settlement, or a deep rural area. Each has its unique constraints and opportunities.

Finally it is noted that infrastructure is only one part of a strategy to promote NMT. Walking buses, educational programmes and Shova Kalula are examples of other types of projects.

### Stakeholder roles and responsibilities

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This strategy has been developed in the context of a transport system that is undergoing transformation to improve mobility and accessibility. Its purpose is to clarify roles and processes for ensuring that NMT is given due regard in the broader system, bearing in mind that some functions will change over time. The short term objective is to establish appropriate planning processes, while building capacity in local government sphere to manage these processes.

Considering the full range of travel purposes, walking and cycling are arguably the most widespread of transport modes, since all public transport trips involve some walking or cycling. The strategy is intended to ensure steady progress towards making it easier to use these and other NMT modes. Each level of government has a role to play in making this happen.

Key components of the strategy are:

- Updating of guidelines and regulations to give greater support to NMT
- Funding streams for capital, operating and maintenance costs that treat NMT as an integral part of transport planning
- Preparation of NMT master plans, and inclusion of NMT in Integrated Transport Plans (ITP)
- Stakeholder involvement in identifying needs and solutions
- Education, training and support programmes to improve awareness and safety

The short-term thrust is to get mechanisms in place to ensure that NMT is thoroughly embedded in planning, budgeting, design and implementation processes.

There is some overlap of responsibilities of various spheres and tiers of government, but the general thrusts are as follows:

National

**General responsibilities**

- Set national policy, legislation and guidelines
- Set out general strategies on aspects of land transport and related issues of land use restructuring
- Implement demonstration projects

**Specific NMT tasks**

- Strengthen policy related to NMT
- Formulate national NMT strategy

Provincial

**General responsibilities**

- Set provincial policy and guidelines
- Implement demonstration projects
- Monitor and support local government processes
- Promote development of local government capacity
- Coordinate and approve municipal ITPs
- Plan, design, implement and maintain provincial land transport infrastructure
- Plan provincial public transport network and manage public transport contracts and subsidies
- Facilitate the flow of capital budgets through public sector
- Ensure that government organisational structures facilitate communication and coordination of projects

**Specific NMT tasks**

- Based on provincial vision, formulate a delivery plan for transportation that includes NMT

- Evaluate legal and institutional frameworks pertaining to NMT delivery
- Prepare business plans for provincial NMT initiatives, and facilitate process of identifying alternative funding sources
- Raise awareness of the role and importance of NMT in the broader transportation system
- Ensure that NMT receives appropriate attention in the PLTF (and, by implication, in the Comprehensive Integrated Transport Plans (CITP), District Integrated Transport Plans(DITP) and Local Integrated Transport Plans(LITP)
- Engage with national Department of Transport on any NMT demonstration projects in the province

#### Local and District

##### **General responsibilities**

- Plan, design, implement and maintain local infrastructure
- Establish by-laws to regulate NMT activity
- Prepare ITPs and IDPs

##### **Specific NMT tasks**

- Identify needs with respect to movement, safety, awareness and skills in relation to NMT
- Identify ways in which NMT can support public transport
- Prepare a strategic approach to NMT, and identify individual projects within the strategy
- Review traffic impact assessments for inclusion of appropriate NMT treatment
- Review by-laws for safety of NMT users, including potential conflicts (e.g. between cyclists and pedestrians, or other modes)
- Encourage urban design including Transport Orientated Design (TOD) that supports NMT and public transport
- Gather NMT data in Current Public Transport Record surveys and in special-purpose surveys

#### Other stakeholders

NGOs, public transport providers, expert practitioners, academics, consumers, developers and other members of the private sector all have a role to play in NMT, from identification of need, to project definition and funding.

#### Project development process

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As part of the strategy, background information is provided to guide the project development process. This is important for ensuring for example that all needs are identified, projects are properly scoped and prioritised, and innovative sources of funding are explored. This process is really the heart of the strategy, since one of the biggest challenges lies in ensuring that the planning and design process considers the full range of user needs.

Identifying needs and projects are perhaps the two most fundamental issues in the process, requiring realignment of how transport planning is approached. NMT should be considered an integral part of any transport system, and not treated as an optional extra. In this sense, NMT projects are not always independent of other transport infrastructure projects, and therefore do not always require separate funding. They should, however, be considered explicitly in ITPs in order to be included in the budgeting process.

In comparison with NMT, it is generally easier to analyse motorised traffic and to design road capacity to meet demand. This is partly because the profession's analytical tools and

design standards are geared towards this type of exercise. Refocusing of the planning and design process therefore requires analysis that considers the needs of all users of the transport system.

The refocused process is summarised as follows:

- Identify stakeholders – a number of stakeholders need to be identified, and involved in specific stages of project identification, prioritisation, design and implementation.
- Establish and maintain partnerships –to enable the full range of NMT needs to be met, partnerships must be quite varied, ranging from community representatives to private developers and to public transport service providers, in order to maximise opportunities to implement NMT systems that are neighbouring or approximate jurisdictions.
- Identify needs – mobility requirements vary considerably in different circumstances, and clear definition of needs is important to ensure a satisfactory system. These will vary not only by geographic area, but also by the type of user and travel purpose and the characteristics of the transport system as a whole. Each governance sector will have a particular perspective and set of planning objectives, and these need to be considered together. Determining existing and future needs will require new types of surveys, and the inclusion of NMT surveys in existing data collection exercises such as for the Current Public Transport Record.
- Identify modes – In many cases, facility design needs to consider more than pedestrians, but rarely will the full range of NMT modes be included, as this would be impractical. Decisions on which modes to accommodate will rest on local requirements and the intended role of a particular facility.
- Plan NMT strategy – NMT facilities are often – though not always – part of the road network, and a cooperative approach between planning departments is needed to ensure appropriate, integrated design. NMT, as with other components of the transport system, has a potential role to play in transforming the transport system as a whole, in support of broader planning objectives.
- Plan projects – within each context, consider needs at different scales, and identify projects at network level and as individual components within the network. Network plans should consider the principal or regional network, the local area network and the leisure and recreational network. These will overlap in places, but the design process should consider the requirements of each independently. Individual projects can be infrastructure that forms part of the network, or services and programmes. Projects generally need to be included in the ITP to qualify for funding through conventional government channels. In some cases, projects will be identified by non-government stakeholders, and these would not be funded through the usual channels. In such cases, the challenge generally will relate to establishing an enabling environment that supports projects or services that have not been anticipated.
- Prioritise projects – priorities are documented in the ITP, and generally are subject to cost-benefit analysis included in a business plan, but should also be based on multi-sector objectives that may not be considered in the traditional analysis. Priorities and phasing should be coordinated with other projects such as new public transport services.
- Secure funding – Depending on whether an NMT project is part of another infrastructure project or not, funding may or may not be secured independently. Opportunities should be identified for obtaining funding from non-government sources, with the involvement of other stakeholders.
- Appoint service providers – for planning, design or implementation of projects.
- Design projects – Design decisions rest on a range of considerations. Some design guidelines are available, but often these consider only pedestrians and /or cyclists. The NMT strategy provides a set of design principles to encourage a more inclusionary

approach. Service projects need to be coordinated across government sectors and levels.

- Appoint contractors – While following procurement regulations, consider suitability of contractors for project objectives, for example in the use of labour-based construction methods.
- Maintain infrastructure or service – Maintenance is particularly important for NMT systems, as users are vulnerable to the impacts of obstacles, poor surface conditions, inadequate lighting and poor accommodation during construction activities.
- Promote NMT – Promotion is important both for ensuring that communities obtain greatest benefit from NMT projects, and for increasing safety through awareness and appropriate behaviour.

### Guiding principles

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Guiding principles are intended to ensure that NMT planning is undertaken in a manner that results in a comprehensively planned system. Design guidelines are not provided, as these are available in other documents locally and internationally. Some key principles relate to the following aspects of planning:

- Facility design – appropriate to the needs of intended users, with consideration of the modes they are using, their age, purpose of travel, capabilities, experience and the context in which they are operating.
- Integrated transport – The system as a whole will benefit from an approach that treats NMT as an integral part of a unified system. NMT serves many purposes, from a mode in its own right to a public transport feeder mode to a recreational activity. As part of this system, it has an important role to play in improving mobility and accessibility and quality of life.
- Safety – Influenced by facility design and by levels of awareness of NMT users and other users of the transport system. NMT planning should be integral to the urban design process in order to create a secure environment and minimise conflict.
- Access – NMT has an important role to play in improving access to opportunities, particularly where travel distances are short or where public transport is an important means of travel.
- Sustainability – By adopting an integrated planning and design process, NMT has the potential to improve sustainability performance in relation to social, economic, environmental and resource management considerations.
- Services and infrastructure – institutional structures and processes should be arranged to allow for infrastructure and services to be provided. Services should be considered to supplement or replace infrastructure.

# 1 Introduction

## 1.1 A Brief Note on Transport Planning

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Before introducing non-motorised transport, the subject of this document, it is worth briefly considering the planning context. There are a number of important concepts that are worth reiterating as key objectives to guide transport planning.

### Integration

Integration in the transportation context can refer to the coordination of processes for planning, design, funding or implementation of projects. It can also refer to the physical proximity and coordination of transport services either between routes operating with a particular transport mode (e.g. bus) or between different modes (e.g. walking-train or bus-taxi). And finally it can refer to the integration of transport infrastructure and services with the communities served. There are other interpretations, but these three are the ones most often discussed in the context of transport planning.

### Sustainability

Aside from the standard dictionary meaning of sustainability, there are numerous interpretations of the derivative terms “sustainable development”, “sustainable transportation”, “sustainable human settlements”, and so on. Some definitions are provided in the appendix, but regardless of the precise wording it is important to bear in mind that the objective is to improve the performance of the services and infrastructure that are implemented, in terms of their impact on the environment, the economy, social wellbeing and resource consumption. Under this broad definition, the need to address sustainability is strongly mandated in the South African Constitution and in various policies at all levels of government.

### Transformation

Another consideration is the reality that in South Africa generally, planners are attempting to redress a situation of inequity in urban development and transport provision. Historically disadvantaged groups are in need of a transport system that is significantly different from the one that exists today, and achieving the needed transformation requires innovation not only in transport planning but also in the way that the built environment is structured to improve sustainability performance (in the broadest sense of the term).

A successful strategy for NMT will need to take this context into consideration.

## 1.2 Background to NMT

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### 1.2.1 What is meant by NMT

Non-motorised transport (NMT) includes all forms of transport that are human- or animal-powered. Examples of NMT for personal mobility include walking, cycling, per-ambulating, rollerblading, skateboarding, bicycle taxiing, rickshaw riding and horse riding. There are also NMT modes for transport of goods, including wheel barrows and carts drawn by donkeys, horses or humans. Importantly, NMT modes include wheelchairs, and hence must be a consideration when planning and designing transport related facilities for special needs persons. NMT is sometimes referred to as ‘active transport’, contrasting with the passivity of motorised transport and highlighting the health benefits of NMT.

Planning for NMT includes considerably more than the provision of infrastructure to accommodate this variety of travel modes. There is also a range of services needed for communities and individuals to be able to take advantage of the potential benefits. It is essential to respond to the obstacles and opportunities present in different circumstances. The travelling community and the relevant government institutions and other stakeholders need to be empowered through a clear strategy and commitment to establishing an appropriate balance in the attention paid to infrastructure and services.

### 1.2.2 Why NMT is important

For many people, walking is the most important way of getting around, and nearly all people walk at the beginning and end of trips made by car or public transport. Cycling is less common, but has potential to serve a large number of trips if conditions allow. A number of other NMT modes are used in small numbers for personal mobility, recreation and goods transport, and also need to be considered in transport planning and infrastructure design.

In general, conditions for NMT have deteriorated due to increased motor traffic, perceptions of increased crime and assault, and a reduction in environmental quality. These conditions have been exacerbated by planning processes that do not adequately address the integral role of NMT in movement patterns. Small-wheeled mobility devices and other innovative modes are largely ignored in planning and regulation, and in many cases are relegated to parks and other isolated locations.

In recent years, increasing emphasis has been placed on the need to improve mobility by non-motorised transport. This comes from the realisation that reinforcing the dominance of motorised transport is not sustainable from a number of perspectives, including:

- Inability to continually increase road capacity to maintain levels of service;
- Implications of the increasing cost of energy;
- Implications for the environment of carbon emissions;
- Social impacts of the physically divisive effects of transport infrastructure;
- Lack of access to private motorised transport for a large proportion of the South African population.

Non-motorised transport improves sustainability performance by addressing these concerns. A more balanced approach will improve social equity, economic opportunity and health by supporting active lifestyles and addressing barriers to personal mobility.

Recognition of the role of NMT in the transportation system is reflected in various policy documents at all levels of government, and in the development of NMT master plans by some municipalities. However there remains inadequate implementation of NMT initiatives.

An NMT strategy should set out how transport and land use planning authorities can encourage and facilitate the use of these modes safely and inclusively. The inclusion of an NMT strategy for District Municipalities and Local Municipalities in the Western Cape is an aid and a basis for preparing their masterplans. What is lacking is detailed national or provincial guidance to show how policy can be interpreted to get the most benefit from NMT in terms of community empowerment, poverty alleviation and social upliftment.

The NMT Policy and Strategy<sup>1</sup> report prepared for the City of Cape Town in October 2005 and the NMT Master Plan for Eden District Municipality<sup>2</sup> of July 2007 both provide extensive documentation of policy directives that suggest the need for NMT and interpret policy in the form of strategy. These policy summaries will not be repeated in this strategy.

A table has been prepared (see Appendix A) that outlines the key benefits from developing and implementing an NMT strategy, and what is needed to achieve these benefits. The table illustrates that benefits cut across a number of policy sectors, but the range of benefits can only be achieved using an integrated approach to providing infrastructure and supporting services for improved mobility.

Mobility generally needs to be addressed at four levels:

- Regional (inter-urban and rural-urban movement) – the role of NMT at this level is primarily in support of public transport.
- Sub-metropolitan (intra-urban) – at the level of travel across metropolitan areas, many trips are too long for NMT as the primary mode, and there should be a significant mix of walking, cycling and public transport used in combination.

- Rural (intra-rural) – here, the mix is quite varied and depends significantly on the local context, such as settlement patterns and the nature of the local economy, but NMT is critical and often supplemented with public transport and sometimes ad-hoc farm transport.
- Neighbourhood – local trips within a neighbourhood not only are shorter than others, but are made for different purposes and focus largely on trips to schools, neighbours, libraries, clinics, shops, recreational facilities and other community destinations.

It is also noted that there is a trend in some countries towards less structured sports and recreation activities, as opposed to scheduled team sports. This has meant increased demand for facilities for walking, cycling and other self-directed forms of exercise. The trend has been less clear in South Africa, but this may be due to a lack of safe and convenient facilities. Certainly with a large proportion of the local population having very little private space, it is to be expected that there would be significant unmet demand for public recreational space.

#### 1.2.3 What led up to this report?

The Draft Provincial Non-Motorised Transport Strategy has been in draft phase since 2005, and a number of changes have taken place in the interim, necessitating a revision to finalise the strategy.

The original draft was prepared at a time when it was important to better understand NMT activity and motivate for improved accommodation of NMT facilities. Since 2004, some district municipalities have proceeded with preparing their NMT masterplans, and the progress and experience gained has influenced the provincial NMT strategy contained in this document.

Feedback from stakeholders and the experience of the district municipalities suggests that the original strategy needed to be restructured to focus more strongly on providing guidance for the preparation of NMT master plans, and clarity on the roles of the various stakeholders.

### 1.3 Purpose of this Report

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Although some planning and implementation of NMT projects has been undertaken in the Western Cape, there has not been a clear provincial strategy. This document aims to rectify this situation. The intention is not to identify or prioritise projects, but to provide a framework to guide the planning process as it pertains to NMT.

Despite the strong motivation for NMT, the process of identifying, planning, designing and implementing transportation projects does not always consider NMT. There are a number of reasons for this patchy implementation, including lack of awareness of NMT's existing and potential role in providing personal mobility, lack of guidance on integrated planning processes, inadequate funding commitment, and lack of resources to plan and implement projects.

In the Western Cape we are moving into the next phase, which is to build on existing policies by developing a workable framework for a process that can address these obstacles to NMT implementation. The strategy presented in this document is intended to provide the following:

- Outline the role of various government agencies in the development of the NMT system
- Indicate the commitment of the PGWC to improving mobility through NMT and supporting local and district municipalities
- Provide a short-term strategy to guide the planning, design and implementation processes for NMT projects
- Identify long-term objectives for NMT planning

This strategy should demonstrate how municipalities can give NMT the full consideration that policy requires. It should also shows the importance of supporting programmes and services for getting maximum benefit from investment in infrastructure.

#### 1.4 How to Use this Report

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Each reader, depending on his or her role in NMT provision, will have different needs and expectations for this report. Consequently, the chapters of this document are arranged so that each one addresses a particular aspect of NMT; the document does not need to be read sequentially from beginning to end.

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## 2 Vision

The Western Cape Department of Transport and Public has adopted an all inclusive vision applicable to the Provincial Government of the Western Cape (Strategic Plan 2010 -2014):

*“An open opportunity society for all”*

A more explicit vision for the transport system is seen in the White Paper on Transport Policy<sup>9</sup> of 1997:

*An integrated, accessible, well managed and maintained transport system throughout the Western Cape, which is recognised as making efficient use of resources and being socially just, in a way that advocates broader developmental aims and objectives.*

The overall objective of NMT is to increase mobility and access to opportunities, and in so doing, to improve the quality of life in a sustainable manner. In this context, sustainability refers to two key issues. First is the impact that transport systems and activities have on the natural environment, resources, the economy and social structures. Second is the ability, literally, to sustain (or maintain) the projects that are put in place to improve access and mobility.

In an effort to redress past imbalances, there is a strong focus particularly on communities that rely more heavily on NMT as a primary mode and for access to public transport, but it is important to acknowledge that NMT can be – and should be – important for all sectors of society.

This objective has to be differentiated further for urban and rural areas. In urban areas improved mobility using non-motorised transport is particularly important on a local scale i.e. comfortable walking and cycling distances have to be taken into consideration. Many short distance trips in urban areas that are being made by motorcar could be undertaken by non-motorised modes. More walking and cycling over short distances is to be encouraged.

In rural areas, planning has to take cognisance of dispersed travel patterns and long distances to be covered for personal mobility and the transportation of lightweight goods. The design of NMT facilities must take account of the use of wheelbarrows and other technologies that assist with transporting water and fuel and other goods. With the larger distances, cycling has a potentially significant role, supported by Shova Kalula and associated infrastructure.

In all areas, mobility cannot be enhanced unless it is affordable and appropriate for local conditions. Questions of suitability can relate to safety among users of the transport system. For example, animal-drawn transport for carrying goods or people can be in conflict with other traffic; and cyclists on off-road paths may clash with pedestrians. Solutions will be some combination of measures, including regulation, enforcement, education and design.

The strategy responds to these objectives with a guiding framework for facilitating practical and implementable projects and programmes. All recommendations that emerge from planning that uses this framework should take cognisance of safety and security, as well as the need to empower people, to foster sustainable job creation and to improve the quality of life for all.

Short-term objectives:

- Household travel survey shows existing demand that needs to be met. Response should address not only documented demand, but also latent demand that could be unlocked through improved facilities and service support. Monitoring through CPTRs should assist with establishing the base situation and assessing progress.
- Need quick wins, and the NDOT's Shova Kalula is administered by the Province as its anchor project: a key mechanism for delivering enhanced mobility in the short term, but it must include follow-through from province in terms of funding and guidance for providing infrastructure and empowering communities to use bicycles. This project is discussed in more detail in Chapter 3, section 3.2.5.

- Each municipality, and different areas of each municipality, has its unique needs, opportunities and constraints that should guide the decision-making process for NMT projects. Funding for municipal projects comes through ITPs and is discussed in Chapter 4, section 4.1.2.1.

Long-term objectives:

- Transform delivery mechanisms through empowerment of government spheres and institutions, ensuring that municipalities that lack capacity and resources are capacitated to perform their land transport functions.
- Redress past inequities not only through NMT infrastructure and services, but also by transforming the context and the objectives of planning (e.g. restructuring urban areas to make NMT travel feasible for a larger proportion of trips, and addressing the relationship between urban and rural areas)

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### 3 Current State of NMT in the Western Cape

At the time of writing this report, some Western Cape municipalities have non-motorised transport plans completed or in preparation. The municipalities preparing these plans have been the “early adopters”, working without clear guidance from the Province. This strategic plan aims to provide the necessary guidance and clarify institutional roles and responsibilities, drawing in part from municipal experience.

There are a number of planning challenges that need to be addressed in order to achieve the provincial vision and associated objectives (highlighted in the section following). Some key challenges are:

- NMT is not incorporated in all aspects of planning, and there remains an emphasis on motorised transport despite a recognised need to “rebalance” movement systems to better respond to a wide range of travel needs
- A lack of appropriate infrastructure inhibits NMT activity, particularly where demand is greatest
- Poor urban design and maintenance result in poor quality environments for NMT
- Lack of integration across government departments and sectors results in poor coordination of infrastructure and services
- Poor information and signage, and lack of focus on wayfinding in urban design, hamper mobility
- Lack of support services such as; awareness, training and enforcement affects feasibility of non-motorised modes by limiting awareness, safety and affordability
- Lack of awareness among drivers and other road users increases safety risks
- Poor levels of safety and security discourage NMT activity, reducing access to opportunities
- The dispersed nature of rural travel forces people to walk long distances and to rely on ad hoc forms of transport where public transport is not viable
- By-laws and regulations that inadequately address NMT modes, presenting challenges for traffic management and safety

The provincial government has a duty and legal mandate to co-ordinate intergovernmental co-operation / interaction for driving NMT improvements. This should translate into the integration of the planning, design, construction and maintenance of transportation facilities in the provincial road reserve and the municipal street systems. One of the key challenges right now is that district municipalities – in most cases – have inadequate resources to manage NMT projects. This means that in the short term external service providers will be used to plan, design and implement NMT initiatives. As mentioned, the NLTA prescribes the capacity building of municipalities that lack the capacity and resources to perform their land transport functions.

In transportation planning processes, inadequate appreciation of the existing and potential role of NMT can result in priority being placed on vehicular traffic, in projects where it might be appropriate to strengthen NMT mobility and NMT for access to public transport. Under constrained budgets, NMT is sometimes seen as an optional extra – despite policy that provides a clear mandate to plan for improved access to opportunities for all. An integrated process would help address this concern.

This document should help district and local municipalities and consultants to understand what is required in terms of policy objectives, and provides examples of the conditions and responses to be found in the Western Cape. This chapter outlines the key policy objectives. Stakeholder responsibilities are provided in Chapter 4, and the strategy implementation process is detailed in Chapter 5.

### 3.1 Guiding Policy

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While national government through the National Department of Transport (NDoT) is responsible for setting transport policy in South Africa, it is the responsibility of the provinces and metropolitan and district municipalities to plan and implement the necessary projects and initiatives to support these policies.

On this basis a review was undertaken to assess the status quo of NMT legislation and policy and planning guidelines at all spheres of government. This review is summarised below.

#### 3.1.1 National Government through the DoT

The appropriate pieces of legislation that provide the legal and policy frameworks are:

- The South African Constitution<sup>3</sup>;
- The National Land Transport Act 05 of 2009<sup>4</sup> (NLTA);
- The Municipal Systems Act 32 of 2000<sup>5</sup> (MSA); and
- The National Land Transport Bill, 2008<sup>6</sup>
- The Road to Safety 2001 -2005 Strategy<sup>8</sup>
- The Rural Transport Strategy for South Africa(2002)<sup>9</sup>
- The Draft National Non-motorised Transport Policy<sup>10</sup>

There is no specific mention of NMT policy in the Constitution or the Municipal Systems Act. However the MSA does mention the need to plan for transportation infrastructure from a mixed-mode perspective, and to plan services in an integrated and sustainable manner. By implication, this includes the NMT modes.

There are several clauses of the NLTA that, while not mentioning NMT specifically, have several statements where NMT is implied. These are as follows:

- Clause 5 (4) (i): ...ensure the integration of public transport modes, giving due consideration to the needs of users; and
- Clause 11 (c) (vii): encouraging and promoting the optimal use of available travel modes so as to enhance the effectiveness of the transport system and reduce travelling time and cost.

The NLTA requires that municipalities prepare Integrated Transport Plans (ITPs.) The NLTA planning regulations on minimum requirements for the preparation of ITPs state that the transport needs assessment in the CIP should be based on the spatial development framework and give adequate attention to non-motorised transport.

A component of the ITP is the Current Public Transport Record (CPTR). The purpose of the CPTR is to collect and analyse public transport passenger demand data as well as public transport services. These data sets are then used to assist in the planning and development of infrastructure and service provision as reflected in the ITP itself.

It is important to note that the minimum CPTR data collection requirement as specified by Government Gazette Notice 1005 of 2002<sup>7</sup> does not include the collection of any NMT data sets, other than passengers waiting at boarding or alighting locations. The absence of this data makes the planning of NMT facilities more difficult, and reliance must be made on data collection on a project-by-project basis.

The National Land Transport Act reinforces the importance of integrating transport planning with land use and development planning in efforts to transform the transport system. Promotion of NMT is implied in the Act's emphasis on improving public transport.

Furthermore, the Road to Safety 2001-2005 strategy<sup>8</sup> has as its mission *"To ensure an acceptable level of quality in road traffic, with the emphasis on road safety, on the South*

*African urban and rural road network.*” A key outcome required of this strategy is identified as “*We want safer pedestrians and cyclists*”. The Shova Kalula (Pedal Easy) Project forms part of the program to promote the safety of cyclists and pedestrians. The Rural Transport Strategy for South Africa (2002)<sup>9</sup> facilitates 13 pilot project areas throughout the country by providing a framework that promotes both motorised and non-motorised transport options.

In December 2008 NDoT released the Draft National Non-motorised Transport Policy<sup>10</sup>, establishing a national context for improving access and mobility. The national document recognises that NMT planning must be integral to transport planning.

### 3.1.2 Provincial NMT Policy and Legislative Summary

The Provincial Department of Transport and Public Works’ vision, as mentioned in Chapter 2, implies integration and accessibility as key elements. This establishes an important role for NMT within the transport system as a means to enable access to social, economic and recreational resources at affordable levels, especially among the poor.

In terms of NMT, walking is acknowledged as an essential part of the public transport system and as a transport mode on its own. Walking should be safe, comfortable and convenient with protected walkways in both urban and rural areas to create a safe pedestrian environment. The potential of cycling is recognised as an efficient and inexpensive transport mode and having the potential to provide accessible and affordable transport. It is noted that affordability varies considerably. In some situations, NMT should improve access to public transport, but in others public transport is unaffordable or unavailable, forcing people to walk or cycle. Both situations must be considered.

While policy guidelines for NMT are specifically mentioned in the provincial white paper on transport policy, this includes no detailed plans or project initiatives regarding NMT.

Given that transportation is a derived need that should support policy in multiple sectors, it should be planned in a way that explicitly identifies the relevant policies. For example, transport can support economic development both by identifying transport-related employment and improving access to employment in other sectors. The Shova Kalula initiative seeks to achieve both by strengthening the role of cyclists in the transport system (thereby making transport more affordable), and providing the benefits of skills transfer and job creation related to bicycles.

### 3.1.3 Metropolitan NMT Policy and Legislative Summary

In response to national and provincial policies and legislation, the City of Cape Town has been addressing the needs of pedestrians and cyclists more directly in local policy formulation. NMT is specifically mentioned in the following guiding documents that include: the 1980-1985 Transport Plan<sup>12</sup> for Cape Town Metropolitan Transport, Metropolitan Spatial Development Framework<sup>13</sup> (MSDF), Integrated Metropolitan Environmental Policy<sup>14</sup>, City’s vision statement<sup>15</sup>, the City’s traffic calming policy for the City Calming Residential Streets<sup>16</sup> and the City’s Pedestrian Plan<sup>17</sup>. The City has also developed a Mobility Strategy which provides guidelines for the development of transport policy where NMT, as well as public transport, have been identified as priority modes in Cape Town’s transport system.

The use of NMT is at least implicitly promoted in all legislation and policy, thus creating space for this NMT Strategy to enhance and flesh out the provincial approach to NMT.

Although the importance of NMT is recognised in the legislation, the institutional structures for the co-ordination of policies, plans and projects, as well as for funding, are not included.

## 3.2 State of NMT in Western Cape

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It is not the purpose of this section to document all NMT projects, but rather to provide examples of the types of facilities to be considered, and their context.

The planning challenges outlined in Section 3.1 have resulted in a less than ideal mobility system in the province. The primary goal of transport – to provide access to opportunities – is compromised by prevailing spatial development patterns, unavailable or unaffordable public transport, and poor levels of personal safety and security, and traffic congestion. Non-

motorised transport planning can only effect a significant improvement to this situation if it is part of a broader effort to change the way infrastructure is planned and designed. With the right approach, NMT can improve access to public transport, overcome physical and operational barriers, and improve safety – but this also requires supporting services such as training and education. In the long term, the effectiveness of NMT strategies can be enhanced through improved planning practices in land use, transportation and other sectors that influence mobility.

An effective approach is summarised as the five Es: **education, enforcement, environment, engineering and encouragement.**

The sections below provide an overview of the state of NMT in the province.

### 3.2.1 Prevalence of Walking

The walk mode usually makes up a large proportion of all trips in urban and rural environments. World Bank estimates put this as high as 70% in most large African cities.

The National Household Travel Survey<sup>18</sup> (NHTS) conducted by the Department of Transport in 2003 and published in 2005 estimated that in the Western Cape overall, 20.5% of commuter trips during the morning peak period were done on foot. Geographically this ranges from a low of 8% in Cape Town to a high of 58% in the Central Karoo.

In the more rural districts, walking plays an important role: over 50% of all work trips are made on foot in the West Coast, Overberg and Central Karoo. However, other trip purposes show a much higher prevalence of walking and cycling.

Trips made to work are generally less dependent on NMT than trips made for other purposes. Scholars, women, elderly and unemployed persons have a greater need for affordable transport as they often have no income. Some 56% of learner trips to places of education are made on foot. Considering all trip purposes, walking is the most common mode everywhere. Economic and social advancement therefore are heavily dependent on improved conditions for NMT.

It should be kept in mind that access to the main public transport mode terminals and stops (e.g. rail stations, bus and taxi stops) is very commonly on foot. This also includes the final 'leg' of the trip, i.e. from public transport terminal to place of work or home.

On average about 13% of those using public transport for work trips walk for longer than the National White Paper<sup>19</sup> target of about one kilometre or 15 minutes.

There are fairly significant differences in access times to public transport amongst the different settlement types found in the Western Cape. Urban households have better accessibility to public transport than those in rural areas. 66% of urban households can gain access to a minibus taxi service with a walk of 15 minutes or less, whereas 90% of rural households have no access to train or bus services and 38% are not served by minibus taxis. However, a relatively small proportion of those who have to walk to work or education centres travel for more than 60 minutes.

There is a clear absence of public transport in the district municipalities. In the Central Karoo, two thirds of households cannot reach public transport services within 30 minutes which can be equated to a two kilometre walk. In Overberg, nearly half of the residents have no access or poor access to public transport. A third of residents in the West Coast municipality are in the same situation. In some contexts, NMT could flourish as a feeder mode to public transport hubs, improving the financial viability of public transport. Consequently, carefully planned NMT infrastructure has the potential to support public transport service where none currently exists. Achievement of this benefit would require a thoroughly integrated approach to transport and land use planning.

### 3.2.2 Types of Facilities

On public land, the responsibility for designing and implementing NMT projects, be they upgrading sidewalks, introducing cycle paths or providing bicycle storage facilities, lies with the public sector. However, government also has a role to play in enhancing the transport

system (including NMT) by directing NMT provision when applications are submitted to the authorities for development of private land. To inform this direction, authorities should have a full understanding of how the NMT system is intended to evolve (through master plans) and how this can be enhanced through urban design and facilities on private land.

Ideally, the needs of NMT users should be addressed from the initial planning of an urban area. Land-use and urban planning should be undertaken with due consideration of all transportation needs, including walking and cycling and other non-motorised modes. Planning should not be limited to personal mobility, but include transport of goods using animal-drawn vehicles. There should also be planning to address recreational needs using all relevant non-motorised modes.

The City of Cape Town and Interface for Cycling Expertise (ICE) have engaged in a partnership within the framework of the Bicycle Partnership Programme (BPP). The BPP began in June 2007, in order to make urban development and transport policies within the City of Cape Town cycling inclusive. This program will specifically develop strategies to finance cycling facilities. Cycling-inclusive policies will also pave the way to acquiring national and international funding.

The City of Cape Town has already established a Non Motorised Transport Strategy, as well as a Bicycle Masterplan and a Pedestrian Safety Implementation Plan.



*Cycle route in a rural area*

Comprehensive NMT plans must also consider destination facilities and support services; but to date, projects generally have focused on route infrastructure. (Exceptions are Shova Kalula and some projects for planning public transport or other public open spaces.) There is currently no regulation in place that requires developers or building owners to provide any NMT related infrastructure or facility. However there are guidelines for the provision of destination facilities, and voluntary standards such as the Green Star SA – Offices rating tool give credit for installation of bike storage facilities, personal lockers, showers and safe and convenient NMT routes from buildings to adjacent streets. Such provisions could in future be regulated by municipalities.

There is also, at present, no complete database of NMT facilities in the Western Cape. Where municipalities do map NMT, they generally concentrate on cycling facilities. It is difficult to map everything, partly because there is no legal definition of NMT, and partly because some modes (such as Animal Drawn Vehicles) do not lend themselves to route mapping. However, it would be easier for municipal and provincial government to integrate NMT planning with road planning if NMT master plans were thought of not simply as route maps, but as documentation of user needs and response strategies. For example if concentrations of NMT activity are identified, it becomes clearer where planning efforts should pay particular attention to NMT design. This would require modification of data collection activities, such as surveys for the CPTR.

The following examples of NMT facilities relate primarily to routes.

### Learner Routes

The 1981 Cape Town Rondebosch / Newlands Bicycle Demonstration Project was aimed at facilitating cycling for learners. Approximately 22km of bicycle paths were constructed. Initially there was a 30% increase in cycling to school, but this declined after 1996, mainly due to increased crime levels and lack of security along the cycle routes.

Stellenbosch also has cycle routes for scholars. Both the Cape Town and Stellenbosch facilities are designed to serve very clear routes to and from a limited number of schools and are not planned to serve other purposes. Future initiatives of this kind should consider designs that include small-wheeled transport.

An NMT strategy for scholars should be used to address some of the challenges faced in bussing scholars to schools. For example, short distances can be made more attractive for pedestrians and cyclists through land design and NMT interventions that are more convenient than bus routes. This will not be practical in all circumstances, but should be an intention for scholar transport that supports broader NMT objectives.



*Non-motorised route through a park*

Commitment to ongoing maintenance and expansion of learner networks is important for attracting and keeping cyclists. Demonstration projects often do not connect with existing or planned routes on bicycle master plans and are of limited utility to the broader cycling community. Maintenance is labour-intensive and requires crews to pay special attention to detail, particularly with regard to debris at the road curb.



*Paved shoulder and pedestrian warning sign*

### Klipfontein Corridor Commuter Route

An urban corridor is a mix of intensive land use activities concentrated at points along a major transportation route, including public transport. The choice of land uses along the corridor is important, as is making these uses accessible by NMT modes. Access to public transport depends on safe and convenient NMT routes, so public transport stops need to be planned together with access routes, which in turn should connect with the bicycle master plan.

The Klipfontein Corridor is one of a number of high-order public transport corridors planned in Cape Town. It extends from the CBD along Klipfontein Road to Khayelitsha and serves approximately a third of the Cape Town population. The impact of the Corridor is consequently enormous, and the planning exercise is intended to maximise the use of public transport by improving NMT access to the corridor and to land uses on the corridor that attract non-motorised traffic.

#### General Pedestrian Routes

Swartland has constructed sidewalks for pedestrians along routes that are being used by local communities in Malmesbury, Riebeek Kasteel and Darling. In some cases these provide much needed links for isolated communities that rely on NMT to reach opportunities in commercial districts. The R45 into Franschhoek is a rural example.

Cape Winelands have also constructed cycle and pedestrian footways along Main Road 191 (which has the potential to become an extended NMT corridor linking Paarl and Franschhoek) as well as the construction of a sidewalk on Main Road 174 (R305), Divisional Road 1398 and upgrading the sidewalk between Ceres and Prince Albert's Hamlet.



*Bridge providing walkway separated from road traffic*

#### Modal Interchanges

New or upgraded transport interchanges such as the Claremont station in Cape Town can play a role in improving access to public transport if they are designed with the pedestrian in mind. The redesigned Claremont station precinct improves way-finding and pedestrian priority across streets using appropriate road design and distinctive surfacing.

#### Facilities at Destinations

In many cases, obstacles to non-motorised transport are not the lack of routes, but the lack of facilities at destinations such as buildings and sports facilities. Key facilities should have secure lock-up areas for bicycles, and showers and change rooms. Some locations also lack safe routes for NMT from the adjacent street network to the building entrances. It is noted that the Green Building Council of South Africa's Green Star SA – Offices rating tool gives developers credit for making it easier to walk and cycle to buildings.

#### Programmes

Cape Winelands have developed the Safer Journeys to Schools strategy and commenced with the implementation of infrastructure projects at various rural schools i.e. upgraded surfaced accesses, sidewalks, embayments and shelters as well as the development and distribution of educational material. The PGWC ran a pilot programme of walking buses in the Cape Town CBD. Walking school buses are another example of ways to improve safety.



*Walking school bus in residential area*

Benchmarking, minimum standards and gap analysis strategy for public transport facilities incorporating needs of NMT users i.e. bicycle parking facilities at ranks and connecting bicycle and pedestrian paths to ranks.

#### Squares and Parks

Off-road facilities can be important to provide added amenity or shortened links between on-road routes. Existing Cape Town examples are Thibault Square in the CBD, St Georges Mall, Constantia green belts, and Keurboom Park in Rondebosch. Open spaces and sports facilities in a wide range of communities can perform similar functions.

Some are used for this purpose despite not being designed with NMT in mind. In future, safety and convenience should be improved by deliberately considering all potential modes that might be accommodated in such facilities, including small-wheeled personal mobility devices. Conflict between users is often a challenge, but there are many examples of guidelines from other countries that address this concern.

#### 3.2.3 Typical Issues in Different Contexts

A broad overview of the level of NMT provision has been developed to provide some indication of where the focus for different types of infrastructure and supporting services should be.

##### Central Business Districts

In the central city environment, the NMT infrastructure usually is pedestrian focussed with very little provision for cycling. Some municipalities have plans completed or underway, but generally the design focus is on facilitating motorised traffic flow. CBD environments typically have:

- Sidewalks on both sides of the roads enabling safe and comfortable walking conditions;
- The sidewalks are generally well lit at night, both by street lighting and adjacent shop and store and external and internal lighting;
- Pedestrian crossing facilities at intersections controlled by traffic signals, although there are very few intersections with pedestrian signal activation facilities, and both drivers and pedestrians tend to be undisciplined in their use of these facilities;
- No provision for alternative transport modes such as pedi-cabs; and
- Very few bicycle facilities, with cyclists being required to share road space with vehicles. Typically there are no safe bicycle storage facilities at transport terminals and stops.

Generally, the cities (Type 1 areas) are conducive to the provision of car free zones and extensive NMT facilities, including pedestrian malls and precincts. There are also frequent opportunities to integrate NMT modes effectively with transportation terminals and stops.

Some of the challenges experienced in the city environment could be:

- Pedestrian hazardous areas, including conflict with motorised or non-motorised wheeled vehicles;
- Lack of exclusive pedestrian crossings;
- Encroachment of parking spaces on public spaces;
- Infrastructure maintenance practices that fail to accommodate NMT modes during construction;
- Safety & security; and
- Quality of the urban environment.

There is a range of possible responses to CBD planning, as demonstrated in cities around the world. There are examples of reducing conflict by prohibiting modes (e.g. not allowing bicycles on sidewalks); by providing extensive bicycle lanes; by increasing the number of locations where NMT has priority over motorised vehicles; by providing bridges or underground crossing facilities; and by limiting areas where motorised vehicles are allowed.

As one local example, Stellenbosch Municipality is considering strategies to reduce the dominance of motorised traffic in the town's CBD and restore comfort levels of pedestrians and cyclists. They have assessed the feasibility of reducing parking supply within the core of the town, providing shuttles from remote parking areas, and pedestrianising some streets. At the time of this writing, NMT planning was underway for the town.

The appropriateness of any response will depend on prevailing conditions and the mobility needs in a particular area.

#### City Suburbs

Residential areas are much more variable in the provision of NMT facilities – in terms of both what **is** provided and what **should be** provided. Facility guidelines generally relate to the road hierarchy and the type of built environment. To a large extent, this is based on potential conflict between different users, and other safety issues. It should be noted that the road hierarchy system was instituted with the aim of guiding road design, without explicit consideration of the subtleties of design that should be incorporated when planning transportation infrastructure to increase public and non-motorised transport.

A balanced approach to road infrastructure planning will often require dialogue between traffic engineers and urban planners and designers to resolve design issues that arise from the interplay of differing perspectives.

In suburbs (as well as towns and villages) there can be pedestrian crossing facilities at mid-block and other locations of high demand, some of which are signal controlled with pedestrian activation facilities. Many crossings are not signal controlled, and although priority should be given to pedestrians by motorists, this is seldom done. Midblock crossings – whether signalised or not – can result in unsafe conditions for pedestrians as a result of drivers and pedestrians not following the rules of the road.

The spatial form and density of cities is heavily influenced by suburban planning. There are many reasons why urban form can be inappropriate. One reason is that it can increase dependence on motorised transport, with resultant pollution, congestion and marginalisation of people who cannot afford private car ownership. To make matters worse, modern cities often are difficult to serve with effective public transport. As a result, many people depend on NMT, while the very conditions that created this situation also make NMT less convenient. Integrated planning is essential to restore balance.

## Towns

Following are some of the issues faced by towns:

- Freeways (for example, the N1 and N2) are significant routes and connections through areas for local accessibility as well as regional economic opportunity. However, these Class 1 routes are also significant barriers and a safety issue for pedestrians and cyclists who travel along them or wish to cross them.
- The disadvantaged low-income communities are generally located on the outskirts of town and sometimes physically separated. There is a strong NMT movement between outlying poorer communities and employment opportunities in the old town.
- Interaction between towns and farms generally relies on informal transport. Drop-off and pick-up locations in towns often can benefit from careful location, provision of shelter and other facilities, and NMT links to shopping areas.
- Coastal towns are scenic and can be major tourist attractors. There is a great potential to support tourism through NMT interventions and programs. Recreational opportunities have not been sufficiently explored in these areas.

Historically, towns began as walkable communities, but many have lost this advantage and others are at risk of doing so. Integrated land use and transport planning that considers NMT explicitly is essential to avoid the negative side effects of growth. With the right approach NMT can strengthen the economies of towns by reducing barriers to mobility, by providing employment related to NMT, and by maintaining environments more conducive to tourism.

## Smaller Settlements

These areas are characterised by very low density residential and agricultural land uses. Very little roadside development is present. Paved sidewalks for pedestrians are rare, although pedestrian activity may be significant. In many cases, small settlements have an advantage in being compact and suitable for NMT. Those that are facing high growth rates should ensure that spatial development patterns do not make NMT more difficult. Recreational cyclists, farm vehicles, goods vehicles and passenger cars create a wide mix of vehicle types and speeds along roads through small settlements, presenting a challenge for safety.



*Walking to and from remote settlements*

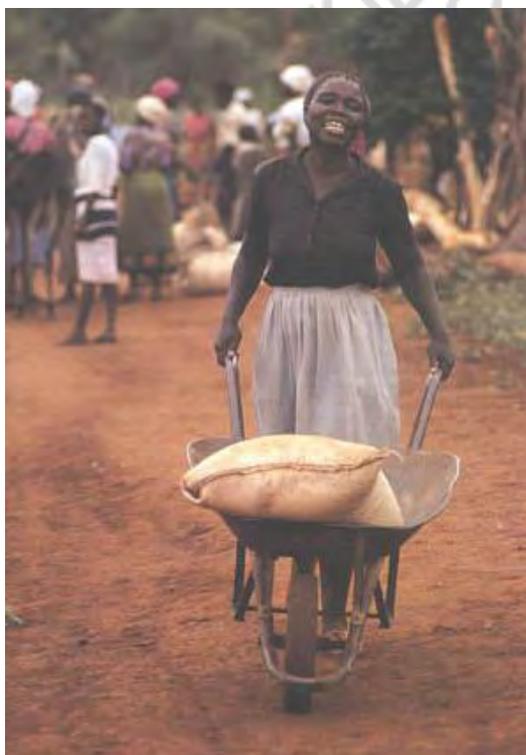
## Deep Rural Areas

Following are some of the issues faced in rural areas:

- Accessibility and mobility is problematic in rural areas. Generally these areas are remote and of low density, with limited transport services available to access employment or services. Although large percentages of the population are walking long

distances in these areas, NMT conditions are usually poor. A result is heavy reliance on informal and unregulated modes of transport such as farm vehicles used to transport passengers.

- There are few employment opportunities available in these areas. Generally there are limited employment generators and thus very high unemployment rates. Agriculture is still predominant and seasonal work on farms or in processing factories often is the main source of employment. Poverty is high with a large low income sector, with the result that NMT is used more than is desirable because public transport is unaffordable. Local economic development (LED) has to be maximized in these areas.
- Capacity and budgets are inadequate in the smaller municipalities, which impacts their ability to plan, implement and maintain NMT infrastructure and facilities.
- Learners have to travel long distances to schools, largely on foot or to bus collection points. The environment is not conducive for walking, is generally unsafe and along routes without any dedicated infrastructure. The trips are uncomfortable during winter seasons when gravel roads are muddy and summer seasons when very high temperatures are experienced.
- Lack of infrastructure and services often means that people in these areas rely on wheelbarrows and other innovative transport modes that are difficult to use without properly designed infrastructure.
- A bias towards motorized transport on roads, and towards capital works at the expense of maintenance, affects NMT more severely than other modes.
- Persons with special needs and small-volume freight transport operators, using animal-drawn vehicles, wheelbarrows and the heavy plastic rolling water barrels, are particularly disadvantaged by a focus on commuter-oriented planning.



*Transporting goods by wheelbarrow*

#### Informal Urban Settlements

Informal settlements often develop organically, with routes suitably orientated for walking to public transport routes on the fringes of the settlement. When upgrading takes place, internal circulation should be designed to maintain convenient routes for the dominant NMT modes. The layout of internal roads, the geometry of road design, and surface paving

should all be suitable for the intended mix of modes, and not follow standard engineering practice where more innovative approaches might improve mobility for the dominant modes.

Routes should also be planned using Crime Prevention through Environmental Design (CPTED) principles to minimise personal security risks, and transport planning should consider how mobility systems will interact with, and support, an appropriate mix of formal and informal trading within these settlements.

#### 3.2.4 Extent of Need

The extent of need for mobility and the appropriate response required depends on local circumstances in each community as well as the ability of implementing agencies to handle varying projects. In some cases, the provision of bicycles and supporting services could be the best immediate response required, while in others it might be the construction of pedestrian sidewalks, skateboard routes or facilities for feeding transport animals.

Currently the transportation planning fraternity at local and provincial government levels is experiencing an increased awareness of NMT. Accordingly, the planning framework is being developed that affords NMT its appropriate place in the transportation system. However, this progressive planning is not reflected in infrastructure that historically lacked integrated design and implementation and ignored the needs of pedestrians and other NMT users.

It needs to be recognised that there is latent demand for NMT mobility. In other words, poor facilities and lack of awareness discourage its use, and improving conditions may increase demand. One of the key strategies to increase NMT activity and to improve the perception of NMT usage is through the creation of a high quality NMT environment. This requires a review of the quality of NMT infrastructure and should include the following components:

- Quality of infrastructure provision (sidewalks, road crossings, rental facilities, parking facilities, landscaping and lighting)
- Development and implementation of NMT Masterplans and local NMT plans. Masterplans should guide the development of local NMT plans should it be absent, but should also take cognisance of and be informed by local NMT Plans where they do exist.
- Surface design appropriate for the intended mix of personal mobility devices, and geometric design that allows for the operational characteristics of these devices.
- Road signage and surface markings that warn and indicate the presence of NMT users. Uniformity and legality have to be ensured through the application of the Road Traffic Signs Manual<sup>20</sup>.
- Route continuity is an important element of NMT planning because continuous routes between popular destinations and attractions improve the ease and convenience of NMT usage.

#### 3.2.5 Shova Kalula

Shova Kalula was launched as a National DoT project in 2001. The objectives of this partnership programme as mentioned previously are to:

- Improve accessibility and mobility for trips that are too far for walking;
- Ensure that transport is affordable;
- Promote safe, secure, reliable and sustainable transport; and
- Provide pedestrian and bicycle facilities that are linked, where appropriate, to other transport infrastructure.

The core focus of Phase 2 is to promote bicycle transport use in areas where people are disadvantaged in terms of mobility. The focus is on bicycle transport operations as opposed to infrastructure and therefore Shova Kalula sites have to be chosen carefully in terms of the safety threat posed by high volumes of motorised traffic. In the Western Cape, the provision

of bicycles to rural schools should improve learners' mobility and potential to benefit from school education by reducing the travel time between school and home. In the case of urban schools, the bicycles will be used as an alternative mode of transport that will relieve congestion on public roads and contribute towards reduced energy consumption and emissions. Shova Kalula is aimed at improving access and mobility of farm workers and women in rural, urban and peri-urban areas.

In the short term, obstacles to bicycle use are mainly a lack of backup services such as financing mechanisms and training for bicycle care and maintenance, financial planning for maintenance and replacement of bicycles, road safety, and lack of secure bicycle storage facilities and showers at destinations.

The NDoT and the National Roads Agency (NRA) recognise that safe infrastructure design and provision for cyclists is crucial for achieving widespread and sustainable bicycle transport use. In this regard, the NDoT and NRA are committed to explore measures to promote safer and more appropriate infrastructure over the medium term. This will occur in parallel with the Shova Kalula programme, which is focused on bicycle distribution.

Distribution of bicycles cannot happen successfully without supporting services, and Province is committed to developing a stronger role for NGOs in providing these services (refer to discussion below on the role of NGOs and other agencies). Province will also encourage that various provincial government departments support NMT promotion through policies and funding to provide, for example:

- Health care worker programmes
- School-based training programmes
- Employee bicycle purchase programmes
- Monitoring of programmes to assess user base and outcomes
- Support of initiatives to promote NMT in the private sector (e.g. New Mobility Initiative, Cycling Academic Network (UCT))

Some of these programmes can be provided by NGOs or other stakeholders, but the appropriate provincial bodies need to be committed to such initiatives. It is also important that various initiatives are coordinated, for example combining training and infrastructure with bicycle distribution.

#### 3.2.6 Awareness, training and education

NMT suffers from perceptions in communities and among planning professionals that have the effect of limiting its use, both as transport and for recreation. Lack of facilities, training and acceptance reinforce the idea that NMT modes do not need to be taken seriously. Some are not recognised at all in planning (such as wheelbarrows or animal-drawn transport) while others are treated as frivolous (e.g. skateboards and inline skates).

There needs to be a culture of inclusiveness that will broaden options for personal mobility and transport of goods. This would provide more equitable access to economic opportunities and generally improve quality of life. Regulations need to be updated to include all modes, and municipalities need to decide how best to adapt planning and controls to suit their circumstances.

Organisations such as the Association for the Advancement of Low-Cost Mobility (Tanzania), the First African Bicycle Information office in Uganda and Bicycling Empowerment Network in Cape Town, are all NGOs that have taught thousands of people to ride bicycles safely. Learning to ride a bicycle should not only be marketed as a necessary skill, but also a fun activity.

The Cape Argus Cycle Tour is already a great attraction for national and international competitors. It is an existing marketing tool that was established with the aim of promoting the development of cycling facilities in Cape Town. It can be used to encourage cycling in

general in the city or to promote particular projects. It has been used to encourage specific groups to take up cycling.

Events such as the 2010 FIFA World Cup attract thousands of visitors who will require appropriate NMT infrastructure and facilities. Such events provide opportunities to secure funding for projects and to promote NMT activity. Efforts to encourage NMT should go hand-in-hand with the provision of infrastructure and support services.



*Road safety training for children cyclists*

### 3.2.7 Regulation and Guidelines

Private sector initiatives such as pedi-cab services (bicycle-powered passenger services) or the installation of bicycle facilities at buildings should be encouraged and supported by clarifying and streamlining approval processes. At the time of writing, discussions were underway between the City of Cape Town and the PGWC regarding the handling of applications for such private sector initiatives. With this particular example, an additional issue is the regulation and licensing of the pedi-cab operations, as current regulations assume that vehicles carrying fee-paying passengers are motorised.

Regulation of provisions at building entrances could follow the example of Green Star, which encourages design to facilitate building access by NMT by, for example, ensuring convenient routes through or around parking areas, providing bicycle parking in safe, secure and convenient locations, and ensuring that there are convenient routes through security-controlled boundary fences. This relates also to designing for universal access.

By-laws can be established for where cyclists can operate. For example, it might be appropriate for children to be allowed to cycle on pedestrian pavements within residential areas, whereas this might be prohibited in areas of high pedestrian activity such as CBDs.

Animal-drawn vehicles are not properly regulated, and it may be appropriate to provide permits for both the animals and the drivers, and to provide for licencing of the carts. At the time of writing, the City of Cape Town was drafting an animal by-law to address these issues. Other municipalities could adopt a similar approach, but may need to adapt for local conditions. The Draft National NMT Policy also indicates that “The Department of Transport will update all its institutional and legislative arrangements to effect an animal transportation-friendly legislative and institutional environment.” DOT also undertakes to provide guidelines and standards for Animal Drawn Transport (ADT) infrastructure.

DOT already has developed cycling infrastructure guidelines that determine, among other things, the factors that should be considered in determining the appropriate bicycle facility type, location and priority for implementation. Ideally, updated guidelines should include all NMT modes, in recognition that needs and conditions vary.

## 4 Strategy Overview

The NMT strategy focuses on how to move from the current state of transport to addressing short-term needs that generally have not been met, and establishing a basis for steady progress towards a dramatically improved environment for NMT. This requires a clear strategy, with a number of steps along the way to address both infrastructure and services, including empowerment of communities and the government agencies responsible for planning and implementing an NMT-supportive environment.

In considering the strategy, it is worth keeping in mind what may seem obvious: that transportation is about moving people, goods and services. NMT is – or should be – integral to efforts to achieve this aim, and is critical to the smooth functioning of the wider system, providing a range of benefits that are not all transport-related. Within this system, walking and cycling meet the greatest need, but other non-motorised modes must be considered to improve safety and meet the diversity of needs.

There is a range of short-term needs prevailing across the province. A number of general needs were identified in the previous chapter. A process for identifying and addressing specific local needs is outlined in the next chapter. In this chapter we focus on the elements that need to be in place to make things happen, and the responsibilities of various stakeholders.

Key elements of the strategy:

- Ensure reliable funding stream for capital costs and operating and maintenance costs, ensuring that ITPs provide adequate motivation for identified projects;
- Set in motion a process to update guidelines and regulations that are not fully supportive of NMT – transport planning philosophies and priorities are evolving in response to changing circumstances, and in some respects may be lagging behind other spheres of governance;
- Obtain stakeholder consensus on what is needed and how it can be delivered – determined through an assessment of a broad range of policy objectives to avoid a limited transport infrastructure response;
- Undertake education and training programmes in multiple sectors to increase public awareness, to improve transport safety and to create a culture of NMT as a serious mode of transport and form of recreation;
- Establish clarity on roles and responsibilities for the full process of NMT planning and implementation, including capacity-building and awareness in government agencies;
- Ensure that each jurisdiction develops and regularly updates a master plan for expanding NMT infrastructure on a sustainable basis;
- Establish a process for identifying and implementing projects based on the master plans;
- Provide support services and a mix of interventions based on an assessment – through participation – of how best to empower communities;
- Ensure that NMT is considered as an integrated component of all transport plans; and
- Ensure that maintenance programmes incorporate NMT facilities and that crews are trained to understand NMT requirements relating to routine maintenance, recovery from extreme weather events, and identification of the need for repairs.

Of the ten elements listed above, master planning needs to be highlighted, as it is the key product that guides planning and is needed to secure funding for individual projects through the ITP process. The following points should be noted:

- Master plans are intended, in part, to support the development of local area plans;

- Transport precinct plans and other general transport plans should incorporate NMT network plans;
- Master plans need to support and reinforce policies from a range of governance sectors.
- They should establish general priorities (e.g. relating to safety, bicycle support, pedestrians, public transport support, etc.);
- They will evolve as local area networks are developed;
- In urban areas, priorities often relate to locations where there are concentrations of activity, but in some cases priorities will relate to the need for access to essential community services (e.g. scholar mobility and access to clinics and hospitals);
- New and updated plans should be informed by stakeholders and by existing plans that address specific concerns;
- They should identify elements related to routes, nodes and services (nodes being places where routes reach their destination, or where routes intersect);
- They should consider different users and trip purposes explicitly, noting that each has its own set of objectives that should inform the planning response; and
- They should consider the different scales of intervention, from regional mobility to local accessibility.

For the long term, roles and responsibilities may change somewhat. Currently, the focus is on getting mechanisms in place. When this has been achieved, the next stage would be to ensure that local agencies are in a position to undertake much of the process themselves, within the framework of provincial and national policies. As mentioned previously, the NLTA advocates for capacity building in the local and district municipalities.

The remaining sections in this chapter deal with roles and responsibilities related to NMT provision. A summary table is provided in Appendix B.

#### 4.1 Government Roles

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All levels of government have a function and responsibility in the provision of NMT projects and services. All departments, including those dealing with health, housing, land, urban planning, education, the natural environment, tourism, economic upliftment and safety and security have an important role to play. In some instances, the best department to lead an initiative allied to NMT may not be Transport.

The role of the various government agencies in the development of the NMT system are outlined below:

##### 4.1.1 National Government

The rights of all citizens of the Republic of South Africa are entrenched in the Constitution of the country.

The Constitution allows in schedule 4(A) for the concurrent legislative competence of the national and provincial spheres for the following areas:

- *Public transport*
- *Public works only in respect of the needs of provincial government departments in the discharge of their responsibilities to administer functions specifically assigned to them in terms of the Constitution or any other law*
- *Regional planning and development*
- *Road traffic regulation*

The following local government matters to the extent set out in section 15.5 (6) (a) and (7) is summarised in schedule 4(B):

- *Municipal planning*
- *Municipal public transport*

- *Municipal public works only in respect of the needs of municipalities in the discharge of their responsibilities to administer functions specifically assigned to them under this Constitution or any other law.*

These functions all include the rights of persons making use of non motorised transport such as walking and cycling, and facilities should be provided under the provisions of the Constitution.

### **National Department of Transport**

The National Department of Transport (NDoT) is responsible for setting policy and legislation for issues of national concern. The national policy framework will give guidance to provinces and municipalities as to the provision of NMT facilities through the National Land Transport Strategic Framework (NLTSF) which must:

- Set out national policy with respect to land transport;*
- Promote the integration of national, provincial and local land transport planning;*
- Describe mechanisms to resolve possible conflicts between land use and transport planning and possible conflicts between provinces and municipalities in the land transport context;*
- Set out a general strategy for freight transport nationwide;*
- Set out a general strategy for rail transport nationwide, including long distance passenger rail and a commuter rail concessioning strategy;*
- Set out a general strategy for national roads;*
- Set out a general strategy for cross-border land transport;*
- Set out the national key performance indicators;*
- Set out a general strategy to support tourism;*
- Set out a general strategy for land transport and the environment;*
- Set out a general strategy for land use restructuring;*
- Set out a general strategy for interprovincial land transport; and*
- Set out a general strategy for transporting persons with disabilities.*

The NDoT will further develop, where required for national unity, such regulations and guidelines as may be identified as required. The Draft National NMT Policy had not been finalised at the time of writing this provincial strategy, but two key elements of the national strategy are noted here. The first is that NDoT undertakes to prepare NMT design guidelines. The second is that each province is to establish an NMT office to guide NMT planning and prioritise projects, which will be funded from a national NMT fund. (NMT projects would still be funded through the ITP process.)

The NDoT is further responsible for the implementation of such demonstration projects as required to prove the effectiveness of NMT as an alternative mode of transport. The completion of demonstration projects must be followed by the evaluation of the projects and then roll-out under provincial and local agencies, as appropriate.

Road signage standards are a national matter. The Draft National NMT Policy proposes that NDoT will update the signage system to integrate cycling needs. As mentioned elsewhere in this document, signage is important for both safety and awareness, and there are a number of areas where NMT is inadequately addressed, not only related to cycling.

### **South African Roads Agency Limited**

Due to its function of providing and maintaining national roads and as part of its social upliftment programmes in rural areas, SANRAL has taken on the provision of NMT facilities on the national roads infrastructure. Bridges over freeways are examples; their planning is not limited to single departments, and should incorporate suitable access routes where demand is highest.

#### **4.1.2 Provincial Government**

Implementing a successful NMT strategy requires buy-in and commitment from provincial government and other agencies that share the same vision. The success rate for sustainable NMT development will be greatly increased if all relevant stakeholders are

involved in every project. Each group has a different role to play which may change over time as institutional capabilities develop. Province needs to help district municipalities strengthen NMT.

The transportation related responsibilities of the Provincial Department of Transport and Public Works is to:

- Plan, design, implement and maintain the provincial road network, with the necessary co-ordination and integration with other road planning authorities;
- Plan the provincial related public transport network, including the development of the necessary institutional restructuring and transformation initiatives to ensure the efficient delivery of services;
- Manage the public transport operator contracts for subsidised services and the co-ordination and management of the subsidies from central government; and
- Co-ordinate and approve the municipal Integrated Transport Plans (ITPs).

The Road Network Management Section is supportive of NMT while undertaking the core responsibility of planning, designing, implementing and maintaining the provincial road network. This support has often included the planning, design and provision of pedestrian bridges, underground causeways, sidewalks, foot paths and cycle routes along the provincial road network which were being maintained, upgraded or built. This NMT strategy should help ensure that this work is supportive of multiple policy sectors.

#### 4.1.2.1 Funding

The province has a vital role to play in ensuring that investment is made where it will have the greatest impact, and where facilities are appropriate to meet travel demand and other objectives. A major role for provincial government is to facilitate the flow of capital budgets through the public sector hierarchy. The two primary funding mechanisms are consolidated capital grants for infrastructure (MIG), and the equitable share mechanism for distribution of funds from national to provincial government. In order for the municipalities to have this funding allocated to NMT projects, these projects must be included in the Integrated Transport Plan.

The successful implementation of the NMT initiatives at all levels is directly related to their level of funding at the planning, implementation and maintenance stages. A successful rollout programme depends on an appropriate level of funding and the allocation of the available funds on an efficient, effective, prioritised and sustainable basis across the region.

For proper integration and development of an effective transport system, it is vital that NMT be considered as integral to the design of roads, as most NMT facilities will be within road reserves. It should not always be assumed, therefore, that NMT funds should be independently sourced. While it is important to identify new sources of funding, it is also important that road infrastructure designs consider NMT as a matter of course. This implies that financial cost benefit assessments for road planning should consider not only motorised traffic, but also non-motorised traffic.

For elements of the NMT system that are independent of other transport infrastructure, implementation should be based on the development of a business plan for projects to be rolled out. This business plan should support the NMT master plan, and from a funding perspective should contain a detailed response to the following issues:

- The need for the project and level of interest expressed by stakeholders.
- The institutional arrangements to administer and manage the funding of the system on an effective and accountable basis, irrespective of the source of funds.
- The estimation of the funding requirements based on cost estimates for each phase of the system over its full life cycle. Other costs such as marketing, promotion and road safety programmes should also be estimated and included in budgets.

- The procurement process to be used. For example, the maintenance of the system could be put to a performance-based contract with a private contractor, or the construction could be put to tender on a turnkey basis, i.e. design, build, maintain.
- An investigation into the potential sources and application of funds for various elements of the NMT strategy, including the private sector.

While the various local authorities as well as the provincial government will contribute financially to the planning and implementation of the system, the business plan should include a detailed investigation into funding opportunities from the private sector. This investigation should include the scoping and assessment of innovative funding mechanisms and procurement opportunities. Possible areas where alternative funding could be available include the following:

- Design and construction of infrastructure as part of transportation projects. It is not unusual for the Provincial Road and Transport Management Branch (or the relevant local authority department) to incorporate NMT facilities in its road projects. This is a separate mechanism from dedicated NMT funds obtained through the ITP process, and requires coordination of priorities among departments.
- Bus shelters and other street furniture related to public transport passenger facilities. Arrangements could be made to share funding with the relevant public transport service provider, which receives revenue from fares and from government subsidies.
- Design and construction of public facilities independent of other projects. For example the Dignified Open Space programme has separate funding sources, and can incorporate NMT facilities; these should tie in with the NMT Master Plan. Urban park developments incorporating NMT facilities can also have funding that is from other sources.
- Provision of facilities on land owned privately or by parastatals. It is sometimes appropriate to negotiate the use of private land to maintain continuity of an NMT network, for example across a short piece of land to connect parts of the network. Eskom power distribution corridors, waterfront developments and nature reserves are other areas that can sometimes be used to extend the NMT network. Regulations could also require developers to provide, at their cost, facilities such as bicycle storage racks and convenient NMT routes between buildings and the street network.
- Training, education and other support programmes addressing awareness, safety and employment could be managed by government agencies dealing with policing, education, driver licencing, labour and health care – each with their own budget sources. Local and international NGOs with independent funding sources are also involved in various aspects of NMT support and promotion.
- Sports facilities and events such as the 2010 Fifa World Cup have their own budgets and NMT requirements that should be coordinated with NMT Master Plans and government programmes. They may provide opportunities to expand NMT.
- New business initiatives identified by the private sector are opportunities to expand NMT awareness and services using private sources of finance. Pedi-cabs are one example of this. Secondary industries such as bicycle sales and repair services are also to be encouraged, and there may be ways to financially support entrepreneurial activities.
- Shova Kalula is an ongoing government initiative with funding to distribute bicycles. Private sector employers could be encouraged to introduce sponsored bicycle purchasing programmes to enable employees to purchase bicycles at subsidised prices.
- Maintenance of NMT infrastructure is generally managed by municipalities, and maintenance can be done by municipal departments, or outsourced. Large regionally based companies could be encouraged to donate funds for the development and maintenance of the system. There are cases of businesses sponsoring the maintenance

of urban “pocket parks” in exchange for advertising, and this model could be extended to NMT facilities, including bus shelters, bicycle racks and skateboard facilities.

- For construction or maintenance there could be levies on business or tourism for certain routes, which could cross-subsidise others. And there are cases overseas where municipalities establish NMT network plans for undeveloped areas, and when developers come in they are expected to contribute to completing the network through their residential developments.
- Monitoring and enforcement are important elements of NMT safety management, generally undertaken under policing budgets, although there can be other agencies to deal with concerns such as animal welfare for ADV. In some cases, there may be a need to involve the use of private security firms, which could be paid for or subsidised by businesses that benefit.
- Demonstration projects and pilot programmes such as “walking buses” can sometimes be arranged through separate budgets that are not part of the main source of NMT funding.

The Department of Transport, in the Draft National NMT Policy, makes a number of points about funding:

- NDoT will, in collaboration with the Departments of Agriculture and Trade and Industries, work on a plan for financial assistance to animal-drawn transport [3.2.8.1];
- NDoT will establish the NMT fund to promote the implementation of this policy and assist the provincial governments and municipalities in funding road infrastructure improvement related to ADT, cycling [3.2.8.2], [3.3.8.1];
- All spheres of government must prioritise the availability of funding for pedestrian and crossing facilities, and the municipalities in collaboration with provincial Departments of Transport will develop funding models that are suitable to their local needs [3.4.5]; and
- The NDoT will collaborate with the Dept of Trade and Industries to work on a plan to give financial assistance to rural people for purchasing bicycles [3.3.8].

#### 4.1.2.2 Providing Guidance, Education, Training & Promotion of NMT

At national level an enabling legislative framework is necessary for promoting NMT.. This should be strengthened by the addition of policy that is geared specifically towards NMT. The National Land Transport Act does not specifically address this.

The Draft National NMT Policy mentions the low level of training of traffic officers with respect to pedestrian safety, and suggests strengthening laws to address pedestrian vulnerability. NDoT also suggests that NMT education should be integrated into the current scholar patrol and road safety education in schools, and driving schools should be encouraged to teach learner drivers about ADT, cycling and pedestrian safety.

Provincial government is taking the legislative framework further by providing this strategic framework, which gives guidelines to the third sphere of government, the local authority, on how to implement NMT projects in local area plans (which are based on master plans).

An important role for provincial government is to evaluate the existing legal and institutional framework; to challenge the aspects that are not serving their purpose well and to ensure that appropriate changes are made that will enhance the delivery of NMT infrastructure and facilities.

Another major role for provincial government is to ensure that the organisational structures are in place to facilitate communication and co-ordination of projects between local governments, between provincial governments and local governments, and between provincial government departments. The structures should be in place and be effectively managed in order to achieve communication.

Part of a long-term strategy to raise awareness among engineering and planning professionals would be to strengthen links between the Province and tertiary educational institutions.

There is a widely acknowledged shortage of skilled and experienced transport planners among the type 2 and 3 planning authorities in the Western Cape. This situation has hampered municipalities in achieving the minimum requirements for ITPs and integrating ITPs with IDPs.

#### 4.1.2.3 Scale of Province Involvement

The provincial government must ensure that NMT receives the required attention in the province through the development of the PLTF and any other related policy documents and provincial legislation. The PLTF incorporates ITPs. It is the guiding document for integrated transport planning as prescribed by the NLTA for the province, and states that:

- 1) *Every MEC must prepare a five-year Provincial Land Transport Framework in accordance with the requirements prescribed by the Minister after consultation with all the MECs*
- 2) *The Provincial Land Transport Framework must provide a transport framework as an overall guide to transport planning within the province. Being guided by the National Land Transport Strategic framework*
- 3) *Provincial Land Transport Framework must include the planning of both intraprovincial and interprovincial long-distance services, which must be linked where applicable with other public transport services, and may provide for a charter services and staff services, and in the case of interprovincial transport, this must be done in consultation with the MEC of the other province or provinces concerned.*
- 4) *The Minister must, as soon as possible after the commencement of the Act, in consultation with the MECs and by notice in the Gazette, determine a date by which each province must have prepared its Provincial Land Transport Framework*
- 5) *All Provincial Land Transport Frameworks must include routes for the transporting of dangerous goods through the province, as reflected in the integrated transport plans within its jurisdiction.*
- 6) *The dates for preparing integrated transport plans must be linked to the Provincial Land Transport Frameworks and must be agreed upon by the MECs and planning authorities.*
- 7) *The Provincial Land Transport Framework must summarise all available integrated transport plans in the province.*
- 8) *The last Provincial Land Transport Framework prepared under the Transition Act is regarded for all purposes as the Provincial Land Transport Framework has been approved by the MEC*
- 9) *The MEC must update the Provincial Land Transport Framework every two years.*
- 10) *The Provincial Land Transport Framework must be submitted to the Minister for approval on or before the date determined under subsection (4) and must be accompanied by copies of all arrangements regarding interprovincial transport concluded between the province and other parties.*
- 11) *The Minister's approval in terms of subsection (10) is limited to –*
  - a) *Monitoring compliance with the National Land Transport Strategic Framework and with this Act and other applicable legislation;*
  - b) *Seeing that the MEC followed the correct procedures and otherwise complied with the prescribed requirements*
  - c) *National policies and principles regarding interprovincial and cross-border transport; and*
  - d) *Modes and aspects of transport under the control of the national government or national public entities.*

[Source: NLTA (2009)]

It is a further responsibility of the provincial government to ensure that municipalities give adequate attention to NMT when preparing the CITP, DITP and LITP as prescribed in the Regulations as Gazetted.

#### 4.1.3 District Municipalities

NMT must be part of the transport planning process, and included in the ITP and IDP. Districts are responsible for coordinating the LITPs and preparing the DITP that is submitted to provincial government. The NLTA (2009) describes the inclusion of infrastructure provision and maintenance in the ITP.

District municipalities, as a result of their dispersed settlement patterns, often struggle to provide effective public transport services. NMT projects can improve access to public transport, thereby improving patronage, service viability and personal mobility. Particularly where distances are long, cycling can be used effectively in support of public transport or as a mode on its own.

In the IDP it should be acknowledged that NMT contributes to pollution reduction and savings in fossil fuel usage.

Municipalities are responsible for the building and maintenance of both roads and facilities either through an internal department or a municipal roads agency. Municipalities must give attention and include NMT in all transport infrastructure projects.

The overall role of NMT can be seen as improving accessibility and mobility for the people of the district municipalities.

The district municipalities facilitate certain strategies to achieve the following:

- Improve the NMT environment
- Improve road safety
- Introduce more bicycles
- Education and marketing campaigns
- Integrated planning

Ultimately, the district municipalities will be responsible for identifying needs and their capability to respond with the delivery of the necessary NMT infrastructure and/or services in their areas.

#### 4.1.4 Local Government

Some municipalities have the resources to plan and implement NMT. For example, the City of Cape Town has already developed their own NMT policy and strategy as well as a Bicycle Masterplan and a Pedestrian Safety Implementation Plan. The city currently has more than 120 kilometres of established cycle lanes within its jurisdiction.

Other local and district municipalities do not have the same level of resources available to the City of Cape Town, and rely more heavily on provincial support.

Through development approval processes, municipalities have the opportunity to require new or rezoned developments to include facilities that support NMT. In the case of individual buildings, this might include showers, lockers and bicycle lock-up facilities. Larger developments might also include safe access through the site for pedestrians, cyclists and users of small-wheeled mobility devices.

Municipalities should encourage application of the concept Transit Oriented Development (TOD) to encourage visitors and employees to travel by public transport. TOD measures would include facilities at the development to encourage NMT access to public transport. Documentation of appropriate proposals would be included in traffic impact assessments submitted with development applications.

Local municipal by-laws are used to control operation of the various modes of transport, including the locations and conditions under which they may operate. This mechanism provides municipalities with leverage to maintain safe operations and to encourage appropriate behaviour by all transport users.

## 4.2 Role of Other Stakeholders

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The strategic guidelines cover a range of issues that must involve a variety of role players from the public and private sectors. Only by adopting a holistic approach which encompasses, amongst others, NMT infrastructure, road safety, bicycle manufacture/ assembly/ distribution/ maintenance, marketing, public transport upgrading, policy changes on land use and the introduction of support services, will effective change be achieved.

### 4.2.1 NGOs

The Bicycling Empowerment Network (BEN) was commissioned to establish Shova Kalula workshops in various locations in the Western Cape. These workshops facilitate the distribution of bicycles to learners or poor members of the community, road safety education, bicycle repair and maintenance and small business management training for individuals identified to manage the bicycle shops. Through this program, job creation opportunities are also created.

BEN has been promoting NMT, but also providing backup services to make it work:

- Providing training in care and maintenance of bikes – to make sure that the initial investment is effective and long-lasting
- Distributing bikes and spares
- Setting up bicycle empowerment centres to address poverty alleviation through direct employment in the NMT industry and through ensuring that services are available to bicycle users for bicycle maintenance
- Supporting development of bike maintenance businesses: empowerment
- Providing input on planning and prioritisation of bike infrastructure
- Assessing and monitoring NMT needs
- Promoting bicycle use – more users, apart from reducing motorised traffic, establishes a critical mass for NMT that improves business opportunities in the industry, makes routes safer and makes more people aware of travel options

Involvement of other community-based NGOs is needed to ensure ongoing support when programmes have been initiated. Consultation between PGWC and participating NGOs is required in order to share their knowledge.

### 4.2.2 Public Transport Providers

Public transport owners and operators should appreciate the commercial benefits of improved NMT facilities and infrastructure. In particular, the minibus-taxi industry needs to understand how the various types of transport can be integrated for the mutual benefit of all.

Historically in the Western Cape there has been an unfortunate lack of integration in public transport planning, with the various road-based modes planned by government agencies and operated by others (with rail planning its own operations and infrastructure semi-independently). An effective NMT system will need to overcome the limitations of current practice through improved linkages across planning, funding and implementing functions.

### 4.2.3 Other Stakeholders

Other stakeholder groups that could be required to commit to implementing a successful NMT Strategy include the following:

### Experts

Politicians, and others, cannot make appropriate decisions in a vacuum. The advice of experts is required to identify possible alternatives, to give advice regarding the best ways to achieve goals and to give a complete picture of the pros and cons of any decision. A major contribution that experts can make is the transfer of their expertise to local officials, consultants and community members. Experts have a vital role to play in providing new skills and thus in employment creation. They can be drawn from consultants and educators, as well as stakeholder user groups that can hold considerable knowledge about local needs, opportunities and constraints.

### The Private Sector

Private sector involvement is crucial for sustainability. It is also an additional source of funding for NMT projects. Appreciating the benefits of NMT for the employees, the employer and the community is important in order to get private sector commitment. Many large organisations have corporate social responsibility programmes, which could include NMT projects. There is also a role for small and medium sized companies in ensuring that the public environment around their businesses is conducive to walking, cycling and the use of other modes. All types of businesses have a role to play in encouraging their employees and customers to travel by NMT, for example by providing showers and bicycle lock-up facilities, and creating awareness of travel options.

The private sector can be involved in numerous ways:

- Manufacturing bicycles or assembling imported units and modifying these to meet local requirements.
- Using bicycles for delivery of small items.
- Providing facilities for staff and client cyclists.
- Sponsoring cycling programmes.
- Establishing green travel plans to promote alternative modes.
- Assisting in financing the purchase of bicycle for staff members.
- Providing incentives to cyclists and public transport users while discouraging private car use by cutting down on parking and reducing staff car allowances.
- Supporting small businesses.

City Improvement Districts are an excellent vehicle for private sector involvement in the local NMT environment as issues related to security, street cleaning, landscaping, sidewalks and parking are put forward in the CID's agenda.

### The Consumers

While pedestrians and cyclists are the two largest groups of users of NMT, it is important to engage other groups in planning NMT initiatives. Users can be identified not only by the mode they use, but also by the reasons they use particular modes. Planning should include consideration of trips made for purposes other than work – such as health, education, recreation, tourism or transport of goods. It can also be helpful to distinguish between urban and rural contexts, as some modes are more prevalent in one area than another.

The differing travel motive and needs of these groups may result in the strategy producing different results, depending on the context, although the principle of convenient access is applicable to all. A fundamental requirement is that representatives of all groups be involved in devising appropriate strategies and projects that meet their needs and the local conditions.

## 5 Project Development Process

This chapter provides both a checklist and an explanation of the steps needed from identifying needs to implementing projects. Not every step is appropriate in every circumstance, and in some cases the sequential order may change, or processes may overlap. The main objective of this list is to provide guidance for the various stakeholders on what needs to be done, and how to set projects in motion. Stakeholder responsibilities were outlined in the previous chapter.

It should also be noted that while the list provides the preferred (or ideal) approach to each task, the level of detail or extent of each activity will vary with circumstances.

### 5.1 Identify Stakeholders

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Depending on the type of project and its context, there are different categories of stakeholder that should be considered to assist with the various stages of project identification, prioritisation, design and implementation:

- Users of the NMT system (community individuals and representatives from NGOs and special interest groups)
- Government departments whose policies will be supported by NMT improvements
- Others who benefit from NMT (formal and informal public transport providers, businesses)
- Funders and potential partners for implementation
- Tertiary educational institutions
- Urban and regional planners
- Event planners
- Representatives from government departments (health, education, housing, transport, etc.)
- Service providers (NGOs, training organisations, communications professionals)

Refer also to section 4.2.3.

### 5.2 Establish and Maintain Partnerships

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Partnerships are perhaps more important for NMT projects than for many others, not least because NMT must be tailored to respond to unique circumstances and cannot easily be standardised. NMT infrastructure varies significantly in its design parameters and in its location in relation to roads – and in some cases may be located on private land.

Some elements of NMT systems will be implemented by transport providers (e.g. station infrastructure), government departments that are not transport-focused, and agencies such as Central Improvement Districts. Because of the breadth of potential NMT interventions, the boundaries of responsibilities can be blurred, and implementation of projects, whether infrastructure or services can require extensive negotiations and ongoing commitment from funders and other partners.

There is a need for guidelines that systematically address integration of NMT into the current infrastructure, interconnectivity of both infrastructure and mode, route alignment, choice of construction materials, lighting, furniture, safety, urban management, and other considerations. Partnerships will be important for developing such guidelines.

### 5.3 Identify NMT Needs

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When identifying the need for NMT projects, the following should be considered:

- Planned urban expansion: preserve opportunities for future expansion of NMT

- Existing urban activity
- Other initiatives or systems that need NMT support (e.g. public transport, community services and infrastructure)
- Functional relationship between urban and rural areas (movement between the two)
- Safety challenges (existing shortcomings or issues anticipated with planned NMT)
- Mobility requirements for different user types (where is demand not being met for tourists, commuters, scholars, recreational users, etc?)
- Mobility requirements for different types of trips (e.g. leisure, sport, commuting, education, shopping)
- Affordability of transportation
- Suitability of topography, and other physical barriers
- Average travel distances
- Range of users (e.g. tourists, commuters, recreational users, etc.)
- Public transport availability
- Spatial distribution of trip origins and destinations, and density of land uses
- Suitability of urban design to NMT activity
- Movement of goods by NMT, e.g. with wheelbarrows, water barrels and bicycles

With regard to urban planning, NMT is best input directly to Spatial Development Frameworks (SDFs), not retrofitted. The SDFs address issues such as population growth and distribution, economic development, and socio-economic factors. NMT master plans should respond to these conditions. Needs will vary considerably across the province, in relation to spatial, social and economic issues.

Not all NMT improvements require a specific project or funding. Many improvements can be implemented by incorporating appropriate interventions in other projects, be they infrastructure or services.

If the problem is clearly defined, the outcome will more closely match needs. This is particularly important for ensuring appropriate allocation of resources and ensuring that both services and infrastructure are considered as possible responses. For example, if pedestrian safety is a concern, a clear definition of the problem may result in an improved strategy to maintain street lights.

Mobility and goods movement requirements of the community should be determined in consultation with community representatives (e.g. Ward Councillors) and through surveys that might be included in the Current Public Transport Record (CPTR).

Historically, CPTR data surveys have not included NMT, but this should be rectified in future. Ongoing identification of needs would also benefit from non-motorised transportation evaluation programs, including data gathering and ongoing public surveys, and consultation.

#### 5.3.1 Route Function and Journey Purpose

For most NMT users, convenience (in terms of journey time and distance) and an acceptable degree of traffic safety and personal security are the most important design requirements. This is particularly the case for access to public transport interchanges or other time critical journeys. It should be noted that traffic safety concerns conflict not only with motor vehicles but also between cyclists and other NMT users. These should be the main factors to take into consideration when planning networks of routes.

The journey purpose is important in defining the value attached to aesthetic attractiveness. There are situations where walking or cycling for pleasure may be the only reason for the journey. This generally happens on rural leisure routes, parks, urban squares,

pedestrianised streets and tourist destinations, but may also be on local neighbourhood streets. There are also multifunction environments such as shopping centres, markets and public transport interchanges where people may wish to meet, relax or trade, but which may also serve as through-routes for pedestrians and cyclists. Careful urban design can ensure that these areas are attractive and functional. It is important to get the balance right through an integrated, multidisciplinary design process.

In order to accommodate the differing and sometimes conflicting needs of various user types and trip purposes, it may be necessary to combine projects or to create dual networks offering different levels of provision, with one network offering greater segregation from motor traffic at the expense of directness and/or priority. Such dual networks may be considered analogous to a busy main road carrying through-traffic and a parallel service road catering for access to homes and shops at lower speeds.

### 5.3.2 Measuring Current NMT Demand

Very little detailed non-motorised transport data is available as it is generally not a regulatory requirement to collect such data. One can obtain an idea of the numbers of non-motorised transport volumes by examining the public transport passenger data recorded in the CPTR. This data does not consider how the passengers got to boarding locations, but it gives an indication of journeys that require walking at the beginning or end.

Some high-level non-motorised travel data may be available from existing national household travel surveys but is not detailed enough for local non-motorised planning. Most travel surveys only record general traffic volumes which may be classified according to the type of vehicle. (Small-wheeled transport is even less likely to be surveyed.) Currently most surveys exclude the walking, cycling and motorcycling trips altogether and they often undercount short trips, non-work trips, travel by children, and recreational trips. For example, trips classified as “auto” or “transit” trips are often actually “walk-auto-walk,” or “bike-bus-walk” trips, yet the non-motorised components are often ignored, even if they occur on public roads.

Many transport studies also concentrate on peak commuter periods, providing a limited perspective. This shortcoming in the process of data collection and analysis tends to result in NMT users being “invisible” to the planning and design process, despite decisions having a direct bearing on their safety.

Some studies (including those for TIAs, precinct plans, intersection upgrades and road improvements) should routinely gather pedestrian and cyclist data along with regular traffic counts. This would increase awareness of the full spectrum of users. Traffic analysis, as a tool for design, should take account of the less easily quantifiable aspects of mobility.

In future, it would be beneficial if pedestrian and cycling surveys were included in the annual Current Public Transport Record (CPTR) surveys to more accurately quantify the volumes on a local level. However, the data requirements need to be carefully considered and prioritised due to the high cost typically associated with collecting pedestrian and bicycle data.

With the recent emphasis on creating sustainable, inclusive communities (as contained in the Integrated Human Settlements Strategy) with improved access to economic opportunities, it is particularly important that transport precincts (stations and bus or taxi terminals) are functionally integrated with their surrounding communities. To achieve integration, it is critical to identify movement demand beyond the precinct. It is also important to assess the role of transport precincts as community facilities serving needs other than mobility. To design for expanded roles requires gathering more information on movement patterns than has been available in the past.

Information on walking and cycling and travelling by other NMT modes can be collected using several techniques either alone or in combination as follows, depending on the specific needs and use of the data:

- A general travel survey designed to elicit sufficient responses concerning non-motorised travel. For example, “travel” should be clearly defined to include modes used on all legs of a journey. Short, non-work and recreational trips, and trips by children should be counted.
- A special survey targeting cyclists and pedestrians (such as survey forms distributed through bicycle shops, sport clubs, recreation centres, colleges, and schools).
- A survey handed out to cyclists and pedestrians as they travel along a street or path.
- Counts that gather information on pedestrian and bicycle travel. These can include photoelectric counters installed on trails, electronic counters installed on cycle paths and bike lanes, and manual counts. In some cases, community stakeholders may also be mobilized to perform manual counts for non-motorised travel, which would raise awareness of NMT issues in the community.
- It is more costly, but can sometimes be appropriate to conduct interview surveys of pedestrian and bicycle users to gather the following information:
  - Who? – Demographic information such as age, gender, residence location, employment status, and income.
  - Where? – Origin and destination of trips, including links by other modes (such as public transport).
  - When? – Time, day of the week, day of the year, and conditions, such as weather, road conditions, and traffic conditions.
  - Why? – Purpose of trip. What factors affected travel choice (for example, would a cyclist have chosen another route or mode if road conditions or facilities were different).
- A special survey at schools to identify existing and potential use of small-wheeled mobility and recreational devices such as skateboards and inline skates.
- Accident Statistics: Pedestrian and bicycle collision data can help identify barriers and hazards to non-motorised travel. Locations with frequent pedestrian or cycling crashes indicate some combination of high risk or heavy use, both of which can justify facility improvements. Pedestrian and cycling collisions tend to be under-reported, so a variety of data collection methods may be needed. The quality of accident reporting and capture of the accident data and statistics are often only good enough to highlight a hazardous location, but the detail of the incident is often vague and of insufficient detail to draw any conclusions. In many cases, collision data does not identify location accurately enough to identify the cause of a collision, and it may be worth liaising with the SAPS to improve the quality. Road safety audits may help in some locations.

If possible, travel data should be recorded in a format that can be stored in Geographic Information Systems (GIS) format. Since non-motorised trips tend to be short, fine-grained mapping is important.

### 5.3.3 Predicting Future NMT Demand

A number of specific factors can affect demand for non-motorised transport in a particular situation. Anticipated changes to any of these factors can result in changes to travel demand. These include:

- Attractions. Certain activity centres tend to attract trips by non-motorised modes, including commercial districts, school-college-university campuses, employment centres, recreation centres and parks.
- Land use patterns. Most walking trips are less than 2 kilometres and most bicycling trips less than 5 kilometres in length, although recreational trips are often much longer. Compact, mixed-use areas are thus more likely to generate NMT trips. Greater density increases the number of people making trips in an area.

- Demographics. Young (10-20 years), elderly, and low-income people tend to rely more on walking and/or cycling for transport. Young middle-income people are more likely to rely on innovative small-wheeled transport. Rural low-income people and low-income people in urban informal settlements are more likely to transport water and other goods by wheelbarrow or as head loads.
- Travel conditions. Wide roads with large numbers of high-speed vehicles can form significant barriers to non-motorised travel. Special facilities for non-motorised travel (sidewalks, wide curb lanes, bridges and paths) and their condition can have a significant impact on the amount of walking and bicycling that occurs.
- Topography and climate. These factors can affect walking and bicycling, but not as much as might be expected. Unlike European countries, South Africa has one of the most accommodating climates in the world with good weather most of the time. Barriers to NMT use are more likely to be cultural influences and lack of services and infrastructure.
- Community attitudes. Local attitudes can have a major impact on the level of cycling in a community. For example, it may be unremarkable that cycling tends to be high among college students and staff, but many college towns find that cycling is also relatively common among people who have not formal affiliation with the college simply because it has become an acceptable form of transportation. This indicates that some people hesitate to cycle, but will if they perceive it to be more socially acceptable.
- Time and geographic scope. It may take several years for a community to fully achieve its full non-motorised travel potential. First year impacts are frequently modest, but tend to increase as individuals become more accustomed to non-motorised travel and as additional support facilities (pedestrian and bicycle network, bicycle parking, etc.) develop.

Many communities have a significant latent demand for non-motorised travel. That is, people would walk and cycle more frequently if they had suitable facilities and resources. Appropriate facilities such as dignified urban spaces and non-motorised infrastructure improvements (sidewalks, crosswalks, multi-use paths, bike lanes, traffic calming) can increase non-motorised travel.

Surveys planned for identifying current demand should be designed to help identify this latent demand, as patterns of travel may change in response to improved facilities and awareness. This can have an impact on facility design requirements.

Most traffic forecasting models use zones that are too large to capture such trips and maps that are too large to document all pedestrian and cycling facilities. Conventional traffic models can be modified to predict non-motorised travel, but in most cases the cost of using such models to forecast NMT demand would not be justified. Whatever method is used, it is important to base forecasts not on a simple extrapolation of past trends, but on an assessment of how a transformed transport system might positively influence travel and recreation patterns. A system that provides improved integration of modes and integration with communities has the potential to influence travel decisions.

A GIS system was developed for Cape Town at the University of Cape Town to use spatial information to help identify the potential for different transport modes.

Socio-economic characteristics can also influence choice of mode. Historically, most people who rely on NMT have been from lower-income communities, but an objective of the NMT strategy is to encourage greater use of non-motorised modes in all communities.

#### 5.3.4 Mobility Requirements for Different Types of Trips

There are various types of trips for which NMT may be used for all or part of the journey. These typically include:

- Commuter trips to and from work: Priority on minimising trip cost in terms of time and distance – commuting cyclists generally are more confident in using on-street facilities, and will share lanes with cars in preference to off-street routes that are less direct.
- Job seekers: Require mobility at very low cost. Generally reducing monetary cost is a higher priority than reducing travel time, so NMT is more likely to be used as the only mode on a journey.
- Learner trips to and from school (may include trips by learners to the library or sports fields): These travellers are less confident and more vulnerable in mixed-traffic situations – particularly under the age of 10 years.
- Service users (include trips to shops, clinics and government services): Rely on ability to carry shopping bags and baskets, and prefer short distances and facilities that present few obstructions.
- Recreational trips by locals or tourists to recreational destinations, or using the trip itself as a form of recreation: Present variable needs, and particularly the ability to travel safely after working hours.

Planning and analysis should not be strictly based on these categories of user, but they are mentioned here to highlight the importance of identifying the diversity of needs that arise in some situations.

It is also important to recognise the particular challenges faced in rural areas.

The Rural Transport Strategy for South Africa<sup>9</sup> clearly outlines the role of NMT in addressing the transport challenges in the rural areas of South Africa. The key strategic thrusts identified, include the promotion of coordinated rural nodal and linkage development, as well as the development of demand-responsive, balanced and sustainable rural transport systems.

The following should be noted in light of NMT planning in rural areas:

- NMT in rural areas should primarily focus on the provision of mobility options and support programmes instead of enhancing infrastructure capacity. Generally the concern is not that volumes of NMT users will exceed the capacity available to accommodate them, but that routes and services simply do not exist or are of inadequate quality.
- Although rural areas do not have the population densities to support mass public transport networks, access to some form of public transport service can improve accessibility to opportunities. The integration of NMT with rural public transport can further improve the accessibility to public transport and to the rural service centres.
- Education campaigns to enhance 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.

The range of NMT user trips in both urban and rural areas can be further categorised into captive and choice users, as follows.

#### Choice NMT User

These are people who choose to use NMT, primarily cycling, as a form of transport because of the many benefits associated with NMT use, even though they may have access to motorised transport. These discretionary users require a high quality of services and infrastructure, and may revert to motorised travel if facility standards are not adequate.

### Captive NMT User

Captive users are forced to use NMT due to its affordability – in poorer communities; many individuals cannot afford public or private transport. But captive users are disadvantaged by:

- Physical distance – in the outlying areas of communities individuals are forced to walk or cycle long distances to reach more formalised forms of public transport, or may not have access to public transport at all.
- Effective distance – inadequate provision for NMT and coordination with public transport exacerbate the already long distances by increasing waiting or walking times.
- Inaccessible transport system – special needs people such as the disabled, learners and the elderly, mothers with prams, people pushing trolleys and others can be disadvantaged by poorly designed or absent facilities.

Captive users have fewer alternatives to NMT and therefore are less likely to switch modes. However, all users are entitled to the same level of mobility through service and infrastructure provision.

### 5.4 Identify Modes

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Some facilities will be dedicated to a single mode, while others will depend on the purpose of the facility, its context and likely users, and planning must consider these users explicitly, based on local needs and the interaction between modes within the system. The choice of intended users will strongly influence the design and associated infrastructure. For example, cyclists require ramps and gentle curves with appropriate stopping sight distances; and people walking with prams need appropriate kerb treatments at intersections.

Design can be used to encourage desired movement patterns. For example, for safety or other reasons, it may be desirable to separate skateboarders and inline skaters from pedestrians, and choice of surface or other design features can be used to guide users.

In some situations, modes such as wheelbarrows or other innovative vehicles will need to be considered.

### 5.5 Plan NMT Strategy

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While NMT infrastructure is not limited to roads, the road network provides a structure for mobility by all modes and therefore needs to be considered in assessing constraints and opportunities for NMT improvements. The road context will influence NMT planning through consideration of the road hierarchy, design, available road reserve and traffic characteristics. Engineering design standards strictly based on the road hierarchy may limit design options, and road engineers from relevant government departments will need to be involved in the design process so that creative solutions can be developed within the context of safe operations. In many cases it is helpful to assess standards from first principles, since they generally do not consider NMT needs.

Other structuring elements should also be recognised for their influence on current NMT patterns and potential improvements: parks, sports facilities, rivers and green belts, public transport facilities and private space that is publicly accessible (e.g. shopping centres and parking areas).

Supporting services and programmes are just as important as infrastructure in developing the NMT system and ensuring that it is used effectively.

There is also a need to consider opportunities for transformation of the transportation system, of urban and rural spatial development, and of local economies. NMT has the potential to play a significant supportive role in all of these, if services and infrastructure are planned appropriately. It is important to:

- Coordinate NMT planning with other plans
- Ensure compliance with statutory processes and plans

- Ensure coordination with programmes in transport and other sectors (LED, ISRDP, PTP, PLTF, National Rail Plan, National Transport Master Plan, National Transport Strategy and Action Plan, National Freight Logistics Strategy, ITP, IDP, NLTSF...)

The strategy should cover the topics outlined in Chapter 4.

## 5.6 Identify Projects Within the Strategy

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When identifying projects, consider the following:

- Context (rural, urban, village, farm, cross-boundary, social context...) affects both the nature of movement requirements and the appropriate design response.
- Type of infrastructure or service (always consider services either as alternatives to infrastructure, or as a supplement, e.g. education for safety, empowerment, skills training, NMT promotion)
- Node vs. link (facilities and services at origin and destination nodes, as well as infrastructure linking origins and destinations).
- Constraints and opportunities (physical, institutional, programmatic, budgets).

Collecting bicycle and pedestrian data can be time consuming and extensive and consideration would have to be given to collecting the data:

- At identified transport terminals or activity centres only (such as schools, colleges and universities);
- On specific strategic public transport corridors & routes (e.g. the flagship IRT routes); and
- Project phasing as a strategy to spread capital costs over time, or to coordinate with infrastructure implemented under separate planning processes.

The type of data required depends on how it will be used, and needs to be carefully considered to avoid unnecessary expense. Data can include bicycle and pedestrian volumes, origin & destination patterns, infrastructure & accessibility constraints, and safety records (pedestrian crossings, walkways & sidewalks, bridges, underpasses, etc.).

The lack of inclusion of NMT data in the CPTR makes the integrated and holistic planning of NMT infrastructure with other modes more difficult, resulting in NMT being overlooked, or approached on a project-by-project ad hoc basis. Careful consideration should be given to including NMT data in the CPTR, and the type & extent of data required must be carefully considered.

### 5.6.1 Network Planning

In developing the provincial NMT strategy, three types of network can be identified. These three networks are not independent of each other, but will overlap in places. It is important to recognise that each has its own design requirements. They are described in more detail as follows:

**The Principal or Regional NMT Network:** Comprises of selected major roads, minor roads and off-road paths and is intended to serve longer distance bicycle and pedestrian commuters as well as recreational trips. Also included are new paths along major road reserves opening new transport corridors to cyclists and pedestrians. This Regional NMT Network provides the commuter with an alternative mode of transport (walking or cycling), as well as access to public transport services by connecting with public transport network routes. The Principal network may include some provision for small-wheeled devices, but these modes are more often accommodated on the Local and Recreational networks.

**The Local Area NMT Network:** These routes are designed to provide safe routes to and from the Principal or Regional NMT Network and to provide for shorter trips to shopping centres, recreational areas and sporting centres (e.g. sports stadiums), bus and railway stations, as well as safe routes to schools etc. with the local street network.

- These networks shall provide convenient access into and through all residential, commercial and industrial areas.
- Local residential streets are also part of the local area network but generally only pedestrian facilities are considered necessary, with cyclists accommodated on streets.

**The Leisure and Recreational Network:** A further category that could be developed in future throughout the province is an off-road NMT Network or Trail Network. This is a network of recreational shared-use paths for walking and cycling and small-wheeled modes in collaboration with the roads agency responsible for storm water management, City Parks, etc. Shared use routes along watercourses (rivers and canals), green belts, parks, and linking public open spaces could be investigated in each local or district municipality.

#### 5.6.2 Individual Projects

Once the general network has been planned, it is necessary to identify individual projects. (Core projects are generally route facilities, but support services and programmes should be identified in an action plan to ensure coordination of infrastructure with other initiatives that are needed to make NMT a viable transport mode.) Key planning decisions will address general route alignment and choice of on-road, off-road, shared or dedicated facilities. It is vital to consider all legitimate modes of NMT and how they will interact with motorised transport, and with themselves. Consider personal mobility and goods transport (e.g. on horse-drawn carts); but also recognise that not all are appropriate everywhere.

In addition to these key elements of conceptual planning, there are associated facilities. The following list gives a non-comprehensive indication of the kinds of facilities to consider; more details are available in NMT design guidelines:

- Rest and refreshment stops (for animals and people)
- Passing opportunities on dedicated NMT facilities
- Mounting and dismounting locations
- Crossing facilities for roads and other physical barriers (consider signals, grade separation, roundabouts, kerbs, pedestrian median refuge, and other design elements that can be either barriers or enhancements to crossing)
- Escape routes (bridges, lanes, isolated routes and any narrow or enclosed spaces can pose a security threat that may need frequently spaced locations for escape)
- Route signage and road markings for NMT users and to raise awareness among drivers
- Facilities for elevation change (e.g. dropped kerbs and ramps for bicycles, wheelchairs, prams and small-wheeled devices)
- Trip end facilities (lock-up, showers, seating)
- Event management (cycle tours, road races, sports stadium events, concerts and other events often require plans not only for participants or spectators, but also for other NMT within the area of impact of the events)



*Animal-drawn vehicles need facilities, regulations and standards for safety and animal welfare*

The Rural Transport Strategy for South Africa identifies a number of challenges for NMT and special needs planning, and proposes innovative ways of improving the effectiveness of transport systems, including a co-ordinated *Programme to Improve Access to Services and Markets in Rural Areas*. These proposals are summarised in the provincial *Public Transport Policy Statement for Special Needs Passengers in the Western Cape – Supporting Documentation*<sup>21</sup>.

Projects will need to be included in the ITP to qualify for provincial funding. However, consideration should be given to potential alternative funding sources. A business plan forms part of the process of securing funds. Project feasibility, which includes the financial aspects, should be carried out as part of project identification. Feasibility studies could be carried out in two stages, with the second more detailed investigation forming part of a business plan, or in one stage. There is a need for guidelines to indicate what is needed for the feasibility assessment, and guidance on this topic could form part of guidelines on other aspects of project design, as mentioned in section 5.2.

### 5.7 Projects Identified Outside Normal Processes

While most NMT planning should be carried out in the context of ITP and SDF planning, there will be circumstances when NMT projects may be identified outside the normal planning process, either in response to unanticipated developments, or through other initiatives from non-government stakeholders. Creative and innovative suggestions should be encouraged, particularly because they may be a response to previously unidentified needs, and may have greater than usual potential for partnerships.



*Private sector initiatives such as pedi-cabs can provide transport without public funding*

Such projects will not be previously identified in the ITP, and therefore won't be on identified budget priorities, making it necessary to involve stakeholders, form partnerships and develop alternative funding sources. If these projects are to be implemented prior to the next round of ITP planning, they will need special motivation to show how they fit in with existing plans. In some cases, requests may be initiated for commercial reasons (e.g. a new or growing income-generating mode of transport), in which case enabling legislation or municipal by-laws and facility design standards may be needed.

A business plan would be needed to motivate the project. Currently there is not a clear process or allocation of responsibilities for considering applications for projects such as the operation of pedi-cabs. Nor does the legal framework provide for licensing of non-motorised

vehicles that carry paying passengers. At the time of writing, this was being considered by The PGWC and the City of Cape Town.

## 5.8 Prioritise Projects

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Generally, project prioritisation will be based on documentation in ITP and consultation with stakeholders. Traditionally, infrastructure project priorities are strongly influenced by financial cost-benefit analysis. While it is important to show that investments of public funds are being made wisely, it is also important to show that multi-sector policy objectives are being supported. For example, the following should be considered in establishing priorities:

- Improved mobility options with geographic reach – providing access to opportunities for employment, health, education and so on, using NMT directly and in support of public transport
- Potential safety improvements
- Ability to synchronise implementation with other projects under development
- Available funding for staff, implementation, maintenance (not only maintaining physical infrastructure, but also resourcing programmes and services) and project management
- Project leverage to develop multi-purpose nodes and linkages, and to encourage private sector investment around transport precincts of all sizes
- Ability to improve livability in the built environment with community connectivity
- Provision of recreational opportunities based on NMT (such as small-wheeled devices) and access to sport and other facilities

Timing of project implementation (and phasing, where appropriate) will depend on both budget cycles and schedules for projects that interact with NMT. Coordination between projects is important not only for practical implementation reasons, but also for ensuring maximum benefit for system users. For example, a new public transport service may need new or upgraded pedestrian access routes.

## 5.9 Secure Funding

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Funding is needed for capital and maintenance costs, planning and design, and staffing for service programmes. Generally, funding is provided through normal channels for projects identified in ITPs. A more extensive list of alternative funding sources has been provided in Chapter 4, section 4.1.2.1.

In some cases, funding activity needs to take place early in the planning process. An action plan based on an NMT master plan should include the establishment of stakeholder relationships and a strategy for obtaining funds from the private and public sectors, as appropriate.

## 5.10 Appoint Service Providers

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Management of projects in most municipalities in the province will need to be outsourced, but the objective should be to build capacity through the engagement of consultants and educational experts. The Strategic Plan 2010-2014 intends to achieve this objective, focussed on transport planning and ITP preparation.

Service providers will be needed at a number of stages of the project development process:

- Planning stages – master planning and project identification
- Design stage – developing conceptual and detailed design once general alignment has been agreed
- Implementation – particularly where government resources are in short supply, consultants may be needed to manage implementation of projects

## 5.11 Design Projects

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Design standards / services depend on the following:

- User types – the needs of different users should be reflected in design of infrastructure (e.g. different levels of user vulnerability should be addressed) and services (e.g. levels of financial capability or knowledge of rules of the road); the question of user types is discussed further in section 6.1
- Trip types – the purpose of trips made will influence design decisions, as trip purpose influences user expectations
- Modes – operating characteristics of different modes (individually and in combination) will need to be addressed to ensure safety of design
- Non-transport objectives such as employment creation – affects choice of design and construction methods for infrastructure, or the role of local communities in supporting programmes such as Shova Kalula
- Maintenance requirements – design should consider ongoing availability of resources, and intentions regarding the use of labour in maintenance activities

For more detail on facility design principles, see Chapter 6.

For infrastructure projects, coordination of design with other infrastructure initiatives is needed to ensure seamless experience by users. Jurisdictional boundaries should be transparent across the NMT network.

The Department of Transport and Public Works: Roads and Transport Management Branch considers public transport, pedestrian and bicycle use along roads being designed, and can make provision within contracts. Decisions about how best to accommodate NMT should be made in a collaborative process involving NMT champions in the province and the relevant municipal authority. Mechanisms need to be established to reinforce the transformation of the design process.

For service projects, coordination with other services is important to avoid conflicting strategies being adopted by different agencies. Awareness of initiatives should be maintained through formal links across government sectors and levels.

The Department of Transport have published draft guidelines on planning and designing facilities for NMT. This document was published in June 2002 and updated in August 2003, and is titled 'Pedestrian and Bicycle Facility Guidelines: Engineering manual to plan and design safe Pedestrian and bicycle facilities'. The DOT guidelines are intended to assist with determining appropriate bicycle facility type, location and priority for implementation, but do not address other NMT modes. A thorough project assessment should consider all modes for their suitability to a given planning or design challenge.

## 5.12 Appoint Contractors

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Apart from the need to meet procurement requirements, there is also a question about designing infrastructure that can be constructed and/or maintained using labour-based methods to increase employment opportunities in the local community. If this is an intention, the design will need to take into consideration the level of skill required, and availability of an appropriate labour force.

## 5.13 Maintain Infrastructure or Service

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Poor maintenance can negate the potential benefits of NMT infrastructure and is not limited to agencies responsible for the NMT facilities themselves, but should extend to activities such as parks and road maintenance. Maintenance activities should be designed to cover:

- Clearing obstacles
  - Regular maintenance

- Recovery from extreme weather events
- Monitoring and repair of infrastructure (including signage and lighting)
- Provision for NMT users during construction activity on NMT or other infrastructure

#### 5.14 Promote NMT

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Promotion relates to encouraging safe practise as well as increased use of NMT. Education and awareness programmes should be designed to achieve the multiple objectives of safer transportation, increased use of NMT and improved personal security through awareness of potential risks. They can also be used to gather information about how community needs can be met with NMT. Stakeholders provide the best sources of information about mobility requirements.

Different marketing approaches are required for various population segments. They can focus on the fun of using non-motorised modes or on the benefits of these modes for individuals and the community, or on other topics. Some of the target groups that can be identified are:

- The middle and upper income groups who regard NMT only as an exercise form and leisure activity. Marketing should aim at encouraging them to choose to replace short motorcar trips with cycling or walking or innovative modes.
- Rural communities where gender issues and affordability could be the main stumbling block with regard to cycling and small-wheeled transport. Marketing would need to be coupled with programmes to provide non-motorised vehicles.
- Learners are existing NMT users and future drivers; for awareness of safe practise, programmes should recognise that children under ten years old have different perceptions and needs than older children, in relation to safety and capability.
- Drivers should be taught to respect the rights of pedestrians and cyclists.
- Private sector companies need to understand the benefits to them of using cycling and supporting NMT projects.
- Public sector officials and politicians have to be educated to appreciate the necessity of ensuring NMT is incorporated into planning design.

The range of target groups illustrates that NMT promotion should span all levels of government and multiple sectors. Training and marketing campaigns could be undertaken by the PGWC at schools (through their different departments) for promoting cycling and educating and training learners on road safety (life skills program). School bicycle training could be included in the education curriculum (similar to Netherlands). Driver awareness, tolerance and courtesy could be addressed with greater emphasis on good driving habits in driver licence material and tests. Traffic law enforcement programmes can also be used to raise awareness.

## 6 Guiding Principles

Following are a number of principles that should be used to guide the development of NMT systems. This is provided to indicate the kind of issues that need to be considered, and is not comprehensive. More detailed guidelines have been developed by some municipalities in South Africa and in other countries. The City of Cape Town NMT Policy and Strategy provides guidelines on some design aspects.

### 6.1 Facility Design

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One of the most important considerations in design is that each vehicle, or personal mobility device, has its own operating characteristics. Just as roads are designed with consideration of how drivers perceive the road ahead, how quickly vehicles can stop under different conditions, and how vehicles can turn at different speeds, so too must NMT facilities be designed. This is important not only for safety, but also for users to feel comfortable. If planners are to encourage increased use of NMT, as policy requires, then users must be able to enjoy the experience.

Every NMT facility or service should be designed with a specific set of users in mind. The design of NMT facilities that are separate from roadways will vary, depending on physical constraints and whether they are to cater for cyclists and pedestrians together, small-wheeled devices, parents with prams, and so on.

The needs of all road users should be fully considered in all road improvement schemes, but not necessarily to give priority to pedestrians and cyclists in every location. Road design is based on traditional hierarchy of facilities and provides a useful guide for the types of conditions to be expected for NMT users. Similarly, adoption of a hierarchy of users is recommended as one of the elements of good practice in Local Transport Plans. Design for operational safety needs to be based on ability of users to control their movement and to avoid conflict. Acknowledge users' vulnerability and respond with appropriate design of the facility.

Users have different requirements due to their journey purpose, level of experience or physical ability, and the mode they are using (bicycle, skateboard, pram, etc.). The design of the most appropriate facility needs to take account of the anticipated type of user, or combination of users. These considerations affect the route location, width, curvature, gradient and other design elements. In many cases this differentiation of users will not alter design decisions, but it helps to be aware of the varying needs in making decisions both at the conceptual planning stage (should a route be on-road or off?) and in detailed design (is there a need for more locations that allow faster cyclists to overtake people who stop to rest?).

Cyclists have a wide variety of levels of experience and confidence, and attitude. At one extreme is the experienced commuter; at the other extreme are children who are learning road sense, and novice or elderly cyclists who may be apprehensive about cycling generally. In between, there is a wide spectrum of cycle users with varying levels of confidence and experience. There are many guidelines available for designing for cyclists, and the City of Cape Town also has established standards.

There can be other user types influencing design as follows:

- **Special Needs Person** – requires consideration of design aspects such as changes in surface elevation, type of surface, clearly defined and easy access and careful attention in the form and placement of street furniture, including resting points. Depending on the particular users being considered, other aspects may need to be considered. Satisfying these requirements will also satisfy the needs of all other users, especially older people, people with heavy **shopping parcels** or **young children**, and people **with temporary impairments** or **low levels of fitness**. There are policy and design guidelines applying to universal access, such as SANS 10246: Accessibility of buildings to disabled persons.

- **Child** – requires a high level of segregation from motorised traffic and/or other measures to reduce the dominance of motor vehicles, such as speed reduction, together with good passive surveillance from other users to increase personal security. These are important factors where children and young people make independent journeys, especially journeys to school. Older learners have different perceptions and abilities than those under the age of 10, but they are more inclined to use modes that require greater levels of skill, such as skateboards and inline skates. Consequently, all ages of children require careful consideration in facility design and educational programmes.
- **Adult or child using innovative modes** – requires surfaces, gradients and widths that allow passage of small-wheeled devices such as skateboards or inline skates. Some use these for recreation only, while others travel to work or school using these modes. Some may combine these modes with public transport, but require routes that are safe for the full length of their journey. For safety and ease of travel, careful design and appropriate signage is needed to make all users aware of which users the facilities are designed for. Wheelbarrows are another mode of small-wheeled transport requiring design consideration in some locations.
- **Operator of animal-drawn vehicle** – often is not aware of (or ignores) the provisions of the Road Traffic Act, and other road users may operate without due caution or respect for equines. The activities of ADVs are generally too dispersed for the provision of dedicated lanes on roads, but consideration should be given to signage, where appropriate, to raise awareness. There may also be locations where ADVs congregate, presenting opportunities for providing rest and refreshment facilities.

Regarding special needs persons, it is important to understand who are being planned for, and their needs. Consider the following:

- **Life Cycle Planning:** There are travellers and recreational users who have special transport needs relating to life stages. Examples include children from 5 to 14 years old for whom transport is particularly unsafe, or who need special assistance when using the transport system; women during pregnancy who may need special assistance or who should be protected from exposure to particular health risks associated with pregnancy; and the elderly who, as a result of age-related impairments, require special assistance, security and access.
- **Impairments:** These are customers with physical or cognitive impairments and disabilities or neurological impairments and disabilities, for whom special assistance, adapted technologies and special safety requirements are necessary.
- **Education:** These are customers who for reasons of illiteracy, age or lack of familiarity with the language of signage are unable to access enough information to use the transport system effectively.

The planner needs to consciously decide which types of cyclists and other users are to be catered for on particular sections of NMT routes. This decision will influence the location of a route in relation to other traffic, and also the way the design will accommodate the combination of users. Experienced cyclists often seek fast, direct routes, with a facility geometry that allows safe operation of the bicycle at appropriate speeds; children and other inexperienced users are likely to require greater separation from other traffic, and are less concerned about directness of route; and users of specialised equipment can require wide facilities free of sharp bends and an absence of pinch-points or any other features which force cyclists to dismount.

Generally speaking, all types of NMT users will use high quality well maintained traffic-free routes away from the carriageway if they are more direct than the equivalent on-road alternative and there are no personal security issues. A well-designed cycle facility will be attractive to a wide spectrum of cyclists. The objective must be to cater for as wide a

spectrum as possible, taking in to account the locality and other contextual considerations. It must however be recognised that not all modes can be accommodated by all facilities.

A further point to be made regarding design decisions is that design affects maintenance needs, and sometimes reduced capital costs are achieved by deliberately designing for increased maintenance as an employment creation strategy – but care needs to be taken, as maintenance budgets can easily be cut. Design is key to safety both in terms of security from crime and prevention of accidents.

## 6.2 Integrated Transport

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NMT is part of a broader, multi-layered transport system, and if the various parts are planned together, the system as a whole – and its users – will benefit. Where pedestrians and other NMT users are in conflict with motorised traffic (e.g. at intersections) design must consider the safety of all users, and conventional methods of analysis should consider priorities agreed among stakeholders. NMT should be planned as a primary mode of transport and as a feeder mode to public transport.

Transformation is an important policy objective for several areas of governance. In particular, NMT can influence transformation in social and economic spheres. The important thing to note is that transformation requires an innovative approach to transport planning, which involves more effort than a standard approach, and a greater reliance on collaboration among stakeholders. If broad policy objectives are to be achieved, it is essential that corridors being planned or modified should consider the priorities assigned among the modes intended to use the corridor.

What this requires, in essence, is a reworking of the way planning and design of road space is undertaken.

## 6.3 Safety

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Safety is of paramount importance, and careful design can often give greater priority to NMT users without compromising the overall safety of the transport system. NMT planning should be integral to the urban design process in order to establish secure environments for NMT, and for NMT to increase levels of community integration.

Safety is generally about minimising or managing conflict between users of a carriageway (whether this is a road or an off-road situation) and needs to consider the design users (age, experience, type of trips) and the built environment context. This is one reason why the range of users needs to be considered explicitly in infrastructure design. Safety is also about designing for mode dynamics independently of the interaction between users. For example, a lone cyclist needs to be able to negotiate hills and curves and to stop on a given surface under variable weather conditions.

As discussed elsewhere in this strategy, education and training are essential; but there is also a need for a review of by-laws related to the use and regulation of each transport mode. Monitoring and enforcement should be considered integral to building safety awareness. Awareness programmes should extend from school-going children to the education of engineers and planners, and to existing users of the transport system.

Safety is also affected by arrangements for accommodating NMT users during maintenance or construction projects, whether such activity relates to NMT infrastructure or other infrastructure. Enforcement of by-laws is crucial in this respect.

## 6.4 Access

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Aside from safety considerations, access is paramount. Mobility is not an objective in itself – it is a means to providing access to opportunities. One of the objectives of urban and regional planning is to reduce the need to travel by influencing the spatial arrangement of land uses. To the extent that mobility remains a necessity, NMT can minimise the negative impacts of travel and maximise positive spinoffs such as improved health and environmental conditions. This is particularly true as the built environment is transformed to reduce travel

distances and as urban design improves the integration of different land uses. In this context, NMT can improve community inclusivity by improving access directly to opportunities or to public transport.

### 6.5 Sustainability

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Sustainability is a complex topic that influences the need for NMT and the way in which initiatives are planned and implemented. As reflected in various government policies, sustainability deals with the four cornerstones of social, economic, environmental and resource management considerations. The institutional context also influences the degree to which sustainability performance objectives can be achieved.

Most aspects of sustainability will be addressed if this provincial strategy is followed. NMT has significant potential in its ability to reduce the negative impacts of transportation on these four cornerstones. Sustainability is also about providing a system that can be maintained in the long term. If the proposed system cannot be maintained because of budgetary or institutional limitations, then it is not sustainable. Equally, if the NMT system undermines the objectives of other sectors, then it compromises sustainability.

Sustainability assessment therefore is not a process separate from the planning and design process, but part of an integrated process.

### 6.6 Services and Infrastructure

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Always consider services to supplement (or even replace) infrastructure. Sometimes peripheral aspects of the system are just as important as primary infrastructure, and are generally less costly. The challenge is usually institutional: ensuring that planning and budgeting processes are not biased towards hard infrastructure when other responses may be more effective. Programmes relating to maintenance (e.g. lighting, waste management and repair), education, training, enforcement of regulations and security can be very effective.

## 7 Conclusions

This strategy is primarily about the processes adopted for NMT planning, design and implementation. It is not intended to be prescriptive regarding design decisions, but rather to encourage an integrated process in order to ensure that NMT projects meet a variety of objectives from different governing sectors. Processes need to be reviewed so that existing government agencies can meet their legal obligations while incorporating NMT productively. It is noted that the implications of this strategy extend well beyond transportation planning to include health, education, safety, housing, employment and other sectors. It is only through improved coordination among these sectors that long-term concerns can be addressed.

Design guidelines will support the strategy. NDoT, in its draft NMT strategy, has undertaken to prepare such guidelines. The PGWC and the City of Cape Town also have guidelines, although their focus is primarily on pedestrians and cyclists. One of the intentions of this strategy is to broaden the range of NMT modes considered in the planning process, in order to meet needs such as those relating to animal drawn vehicles, small-wheeled devices and other innovative modes. There is a wide range of trip purposes for personal mobility and the movement of goods that need to be considered.

In order to create an enabling environment for NMT, this strategy has identified a number of areas that require further investigation. These will deal with safety as well as encouragement of affordable transport, sports and recreation, tourism, job creation, improved health, and other potential benefits from reduced reliance on motorised transport. Investigations should include a review of municipal by-laws relating to the licencing of non-motorised vehicles and their operators, locations where certain modes can be operated, street signs and road markings.

A provincial multi-disciplinary forum is needed to address these issues at provincial level, with stakeholder engagement to ensure that the evolution of processes and regulations will meet the needs of businesses and communities. This will need to include a broad programme for increasing awareness and improving safety, and a number of sectors have been identified for contribution to this programme.

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## ACRONYMS

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ADT – Animal-drawn Transport

BEN – Bicycling Empowerment Network

BPP – Bicycle Partnership Programme, began in June 2007, between the City of Cape Town and Interface for Cycling Expertise (I-CE).

CID – City Improvement District

CITP – Comprehensive Integrated Transport Plan

CPTED – Crime Prevention Through Environmental Design

CoCT – City of Cape Town

CPTR – Current Public Transport Record

DITP – District Integrated Transport Plan

DM – District Municipality

DoT – See NDoT

GIS – Geographic Information System

ICE – Interface for Cycling Expertise

IDP – Integrated Development Plan

IRT – Integrated Rapid Transport (formerly Bus Rapid Transport)

ISRDP – Integrated Sustainable Rural Development Programme

ITP – Integrated Transport Plan

LED – Local Economic Development

LITP – Local Integrated Transport Plan

MOU – Memorandum of Understanding

MSA – Municipal Systems Act 32 of 2000

MSDF – Metropolitan Spatial Development Framework

NDoT – National Department of Transport

NGO – Non-governmental Organisation

NHTS – National Household Travel Survey, conducted by the NDoT in 2003 and published in 2005

NLTSF – National Land Transport Strategic Framework

NLTA – National Land Transport Act 22 of 2009

NMA – New Mobility Alliance

NMT – Non-motorised Transport

NRA – National Roads Agency

OLS – Operating Licence Strategy

PGWC – Provincial Government of the Western Cape

PLTF – Provincial Land Transport Framework

PTIF – Public Transport Infrastructure Fund

PTP – Public Transport Plan

RTMC – Road Traffic Management Corporation

RTSM – Road Traffic Signs Manual

SANRAL – South African National Roads Agency Limited

SDF – Spatial Development Framework

SMME – Small, medium and micro enterprises

TIA – Traffic Impact Assessment

TOD – Transit Oriented Development

UCT – University of Cape Town

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## APPENDIX A

### Benefits of NMT

There is a range of potential benefits arising from non-motorised transport, but there is also a number of things that need to be in place in order for communities to receive these benefits. Much of the purpose of this NMT strategy report is to provide district and local municipalities with an understanding of how NMT can be implemented in a way that achieves maximum benefit. The table below provides a summary of the potential strategies that can be considered, bearing in mind that not all are applicable in every circumstance. The benefits also are not exclusive, so there is some overlap.

On reading this table, it will be clear that many of the strategies are not directly related to NMT infrastructure; indeed, infrastructure will not achieve significant benefits unless it is supported by a broader strategy and appropriate policy.

Benefit	What is needed	How to achieve it
Affordable access to opportunities	Short commuting distances	Integrated planning that keeps employment close to residential areas; increased development densities; routes planned to meet needs; continuity of routes
	Financial support for bicycle purchase	NGO and other activity providing communities with links to resources
	Facilities at private and public destinations that allow safe bicycle lockup and showering	Municipal requirements that certain new developments and existing buildings provide such facilities; incorporate NMT strategies in traffic impact assessments
	NMT routes to destinations and through new development areas	Incorporation of requirements in development approval processes that ensure provision of NMT routes
Support of public transport	Design of infrastructure to allow passage of people with disabilities	Amendment of municipal design standards to allow for wheelchair access (e.g. tactile facilities for blind people, curb design for wheelchairs, standards for surfacing of NMT routes); municipal requirements that public buildings meet requirements for universal access; design for universal access at public transport facilities
	Reduced impact of parking on NMT	Develop parking requirements for new development that reduce the inconvenience for walking and cycling from the public street to building entrances
Improved health	Improved links to public transport	Planning of NMT routes and facilities coordinated with public transport stops and stations
	Bicycle facilities at stations and on public transport vehicles	Municipal engagement with public transport operators to provide facilities; provision of facilities by municipalities planning and constructing transport precincts
	Reduced reliance on motorised transport	Programmes and investments that increase feasibility of NMT as a serious transport mode; programmes to overcome socio-cultural inhibitions related to NMT; design for comfort and convenience of NMT routes; adopt design standards for street and parking infrastructure that reduce the bias towards motorised transport; high quality of facility design, treating users with dignity
	NMT for recreation	NMT routes that make use of parks, natural areas and public open spaces; routes designed to accommodate small-wheeled personal mobility devices; bicycle facilities at sporting and other recreational destinations
	Greater social interaction	Design for human-scaled, livable communities
	Reduced pollution	See 'Reduced reliance on motorised transport'

Improved education opportunities	Reduced time for travel to school	Improved routes for bicycles and bicycle facilities at schools; bicycle training programmes; programmes for providing bicycles to scholars; improved NMT access to public transport (See 'Support of public transport')
	Reduced cost of travel	Scholar subsidies for reduced public transport fares, combined with improved NMT access to public transport; see 'Affordable access to opportunities'
Reliable transport	Bicycle maintenance	Bicycle maintenance training; support of bicycle maintenance businesses
	Infrastructure maintenance	Consider NMT accommodation during construction of all forms of infrastructure; develop monitoring strategies, and maintenance schedules and standards for NMT infrastructure
	Reduced traffic congestion	Reduce reliance on motorised transport (see 'Improved health')
Safe transport	Design of NMT routes to accommodate appropriate NMT vehicles	Identify appropriate NMT modes for specific routes, and design accordingly
	Safe practice by transport operators (private and public)	Programmes to increase awareness of NMT users and related traffic regulations
	Safe operation of animal-drawn vehicles	Development of design standards for facilities for ADV; development of operational regulations for ADT; programmes to develop awareness of ADVs among drivers, and safer driving practices by ADV drivers
	Improved vehicle maintenance	Development and enforcement of maintenance standards for alternative modes such as ADV
	Provision of adequate lighting and other measures to improve personal security	Maintenance schedules and standards that recognise the importance of NMT as a transport mode
	Infrastructure design that allows safe passage of NMT vehicles	Use of bicycle-friendly stormwater grates; design of road and rail intersections to facilitate NMT crossing; construction of NMT bridges across barriers; traffic calming
	Visible surveillance by police, parking security and others	Arrangements with relevant agencies; introduction of walking and cycling 'buses' and scholar patrols
	Planning and design of NMT routes and facilities that minimises opportunities for crime	Adopt CPTED principles; carefully plan key routes for reaching critical mass; coordinate corridor planning of infrastructure with adjacent land uses
Energy conservation	Reduced reliance on single-occupant motorised transport	Support of public transport (see also 'Affordable access to opportunities'); see also 'Reduced reliance on motorised transport' under Improved health
Economic revitalisation	Job creation	Promotion of support industries through LED (such as NMT vehicle repair, local manufacture of vehicles and parts, animal care); construction of infrastructure using labour-intensive methods; promotion and support of new businesses using NMT as a transport mode
	Improved access to employment	See 'affordable access to opportunities'
	Reduced cost of travel so that a smaller proportion of income is spent on transport	See 'affordable access to opportunities'
	Support for alternative modes such as pedi-cabs for direct employment and promotion of tourism	Small business support programmes; development of regulations for non-motorised transport of passengers; development of facilities for waiting for passengers
	Support for equipment for animal-drawn transport	Small business support programmes; financial support mechanisms; development of regulations for animal-drawn vehicles; development of facilities for animals to rest and be fed and watered

## APPENDIX B

### Responsibilities Related to NMT Provision

Area of responsibility	Specific aspect	Government responsibilities
Infrastructure	Planning and design	Local or district municipalities identify projects for inclusion in master plan and ITP; PGWC and municipality to develop implementation plan and strategies in consultation with stakeholders
	Construction	Local or district municipalities
	Maintenance	Local or district municipalities
Regulation	Licensing of NMT vehicles	Province
	Traffic safety	National govt sets legislation to guide road traffic safety; municipalities establish by-laws to govern where and when NMT vehicles may operate
Transport planning	Operational plans	Local municipalities develop operational plans in line with provincial plans; where capacity is lacking, PGWC assists in short term, but develop local capacity in long term
	National transport master plan	NDoT sets requirements for master plans from lower tiers of government to feed into national plans
	Local transport master plan	Local and district municipalities prepare master plans and ITPs that are included in the Provincial Land Transport Framework
	Policy setting	NDoT sets overall policy framework to guide lower tiers of government; PGWC and municipalities set policy within national policy framework
	Policy performance	NDoT is responsible for monitoring and evaluating overall NMT policy performance, and ensuring effective policy implementation; to measure performance, NDoT will develop indicators for monitoring success of NMT policy; provincial DoT is responsible for monitoring and evaluating NMT provision and programmes; Local govt is responsible for monitoring and evaluating local-level NMT plans and projects.
Funding	Subsidies	NDoT will work with other departments on a plan for financial assistance for ADV, and will develop criteria for the subsidy
	General funding sources	The four most common funding sources are donor funds, central govt grants, local govt revenues and allocations from a dedicated road fund
	Specialised funding sources	NDoT will ensure the Road Accident Fund covers claims related to ADT where licencing and regulatory requirements are met; NDoT will establish the NMT Fund; municipalities with PGWC will develop suitable local funding models for ADV
	Gaps in funding	Promotion of NMT requires certain infrastructure and strategies not covered by the usual mechanisms – NDoT will work with other departments to develop a plan to give financial assistance to rural people who would like to purchase bicycles for transport; NDoT is formulating the Public Transport Infrastructure Fund as an opportunity within the sphere of local govt to ensure integrated planning through ITPs
Safety	Awareness of traffic safety	NDoT (with RTMC) will provide programmes to increase awareness of traffic safety issues and encourage safe driving habits; NDoT (with RTMC and Dept of Education) will develop NMT education material and roadshows
	Vehicle maintenance	Provincial DoT will work with municipalities to establish repair shops under LED programmes
	Crime	Crime needs to be addressed with the help of police and municipal traffic safety and security officers, and community policing forums; local govt needs to address crime through design of facilities by adhering to CPTED principles; local govt needs to address crime through maintenance programmes for lighting and other infrastructure

	Road infrastructure maintenance	NDoT (with RTMC) will ensure that road safety audits are conducted every 5 years
Guidelines	Facility design	NDoT developed pedestrian and Bicycle Facility Guidelines, including how to determine appropriate facility type, location and priority for implementation; municipalities can adopt their own guidelines; there are no local guidelines for facilities for small-wheeled devices or ADT, but many international examples

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