



4 Transport Planning



Transport is a vital system for a functional city. It brings people, goods and services together when and where they are needed. Urban transport systems are made up of public buses, minibus taxis, private motor vehicles, freight trucks and trains, passenger trains, walking and cycling. This system also includes the roads, railways and pavements, which carry these modes of transport.

A cause of the problems experienced in towns and cities is private motor vehicles being given priority over public transport and active transport options. This has contributed to sprawl and to residents being located in suburbs far from their places of work and daily activities, rather than being close enough to walk or cycle. This has had a negative effect on the health and well-being of residents and damaged the local environment (for example by suburbs encroaching into agricultural areas). These problems intensify as towns grow leading to further congestion, time wasted travelling or in traffic, urban sprawl, air and noise pollution, loss of open space, and an increased demand for fossil fuels.



Fast Fact:

Greenhouse gas emissions and transport

The transport sector accounts for approximately 17% of greenhouse gas emissions in Steve Tshwete. Therefore reducing the number of cars on the road can significantly reduce the municipality's effect on global climate change.

Source: Greenhouse Gas Inventory 2012 Report, Urban-LEDS, ICLEI Africa

It has become clear that municipal transport planning needs to be innovative to address the current challenges.

“**Active Transport**” is a new phrase in South Africa and has been identified as a priority area at national, provincial and local government. Previously, the phrase non-motorised transport (NMT) was used. This includes all forms of movement that are human-powered and do not rely on engines or motors for movement, such as walking, cycling (and a host of related modes such as rickshaws, wheelchairs or even skateboards). Making use of active transport to get to work not only benefits the environment but can have significant positive health and economic benefits too.

The overall goal of the Low Emissions Spatial Transition in the Steve Tshwete Local Municipality is the establishment of a compact, efficient, integrated, liveable and affordable city, in which there is good and equitable mobility, and transport related emissions are minimised. This should include an improved public transport network. According to the Nkangala District Municipality CIP (2012/12), approximately 25 000 households in STLM have no car, and there is thus a pressing need for an improvement to the non-motorised transport network, as well as to promote cycling as an inclusive mode of transport and commuting.



“ South Africa is such a car-orientated country, as success is often equated with the ability to buy and drive a motor vehicle.

But we have to start thinking of ways to decrease the effect of carbon emissions on our environment. This requires an efficient and practical transport system that encourages people to use NMT and BRT systems instead of cars”

**Sekadi Phayane
Manager**

SMEC roads and highways Gauteng South

Source: Mavuso, Z. NMT 'greening' public transport. Engineering News.
(<http://www.engineeringnews.co.za/article/cycling-brings-environment-friendliness-to-public-transport-2013-11-01>).

4.1 What changes do we need?

Sustainable transport practices include planning for, and supporting, movement patterns that increase the use of non-polluting energy sources, as well as the number of transport modes available to urban residents. It encourages walking, cycling and public transport use instead of private vehicle use (especially in the journey to and from work, school and recreation), freight carried over rail rather than road, and it supports integrated planning approaches. This includes providing the appropriate infrastructure for various modes of transport such as foot paths, cycle lanes, and bus lanes and stops. Public transport plays a vital role in providing all citizens and visitors with access to opportunities and facilities, whether for economic, education, health, recreation or social purposes.

4.2 How do we design our buildings?

4.2.1 Consider transport during site selection

Developments that are within close proximity to good public transport nodes and routes with frequent service can encourage building occupants to use public transport. The building location and design should also favour active transport (pedestrians and cycling). This helps to provide a variety of transport options for staff (building occupants) and visitors alike to access the property without needing to use private vehicles.

4.2.2 Design for on-site facilities

Wherever possible, the design of buildings should include the provision of on-site facilities (such as banking, laundrette, coffee shop, hair salon) so as to reduce the need for additional trips by building users for basic amenities. This has the additional advantage in many instances of activating the building edge, and so making it safer and more pedestrian friendly.

There is a growing trend both in South Africa and internationally for commercial and retail developments to provide good cyclist facilities that encourage and enable the use of bicycles as a means of transport. Adequate undercover, safe bicycle parking should be provided, both for staff and building visitors, along with lockers and shower facilities. This doubles as a functional facility for staff who wish to exercise at lunch time.

Many professionals undertake unnecessary flights around the country on a monthly or more frequent basis – the incorporation of good video conferencing facilities into the building goes a long way to reduce the need for flights, and should be encouraged.



4.2.3 Provide preferential parking

Clever building design can incentivise and help to enforce good decision-making within the transport sector. Building design should make it as attractive and convenient as possible for users to use energy efficient and renewable energy powered modes of transport. This should be while simultaneously discouraging the use of large single occupancy vehicles (SOVs), such as 4x4s, which consume large amounts of fuel and emit higher levels greenhouse gases than smaller vehicles. A simple way to impact behaviour is through parking provision. Priority, easy access parking closest to building entrances should be reserved for the desired classes of vehicles, such as carpooling and shared vehicles, mopeds, motorcycles and scooters, and hybrids or alternative fuel vehicles. This should be in addition to the parking bay requirements for the disabled.

During the initial design of the building it may also be prudent to consider the installation of wire-ways for the future retrofit of some bays with electric charging points, as it is anticipated that the use of electric vehicles will increase in the future.

4.2.4 Reduce parking ratios

Design buildings with fewer parking bays than the local planning allowances permit. Whilst the municipal minimum ratios will need to be adhered to, every effort should be made not to exceed them where they do exist and a reduction of these should be considered by the municipality, especially where existing public transport facilities exist.

4.2.5 Design for accessibility

Buildings should be designed for universal access, including the needs of disabled persons. The National

Building Regulations stipulate specific standards which need to be adhered to by all building designers in SANS 10400-S. To improve upon these standards, universal accessibility should also be given priority throughout the building, and clearly indicated at building and site entrances. Wheelchair ramps and suitable slopes should be designed at all building entrances, and clearly designated safe paths need to be made available for pedestrians and cyclists.



4.3 How do we construct our buildings?

4.3.1 Co-ordinate staff transport requirements

Contractors and developers can actively encourage construction staff to lift share or carpool. Such behaviour can be facilitated through the use of a noticeboard for lifts to be advertised or shared, and a designated meeting or collection area identified, and rewarded through the allocation of parking to carpool vehicles. Gauteng's Department of Rural Development has recently created an internal staff car-pooling system and website through a tailor made online version of www.findalift.co.za.



4.3.2 Plan and co-ordinate material delivery

Good preparation and planning can reduce unnecessary transport requirements around materials to be delivered during the construction phase of the project. Large developments can also benefit dramatically from the use of a concrete batch plant instead of the need to bring in large volumes of cement at one time. Not only does this prevent stress on the traffic grid at peak times, but also results in fewer harmful pollutants and greenhouse gases being released from large trucks especially concrete mixers waiting in lines with their engines idling.

4.4 How do we manage our buildings?

4.4.1 Implement an eco-mobility plan

Travelling requirements can be reduced through better co-ordination and suitable infrastructure, as outlined below in a few simple steps to set up an eco-mobility plan:

Do a transport survey: The first step in the proactive management of a building in order to promote active transport and a move away from single occupant private vehicles is a review of the current practices. This would help to develop an understanding of how staff or building occupants and visitors currently access the building, as well as when and why they leave. One way to do this is to develop and administer a transportation management survey for all staff and visitors.

Compile a transport strategy: Thereafter, a formal strategy should be drawn up which allows key

interventions and strategies for improvement to be planned and prioritised. A green travel or transport management plan should be developed and implemented to encourage alternative commuting to single occupant private vehicles and promote travel by modes that produce lower emissions per passenger-kilometre. Central to the success of this is buy-in from building occupants, and it is recommended that executive or body corporate buy-in is obtained to the green travel plan.

Encourage innovative alternatives: In the case of corporates and where appropriate, employers should be encouraged to allow staff to work flexi-time or to work from home. Office design should incorporate more hot desks and less permanent ones. Lift sharing and carpooling should be encouraged and facilitated – businesses could offer dedicated or preferential parking bays or free parking to carpooling or lift share vehicles, and the company intranet be used to connect staff coming in from similar areas. Another option, which has been embraced by some corporates, is the use of one or two hire cars, which are available to staff during the day for work-related travel, and thus allows staff to use public transport to commute and leave their private vehicles at home.

Promote public transport: Major public transport routes in the close vicinity should be identified and regularly communicated to residents and/or staff and building visitors alike. This can be done via notice boards or information screens in the foyer, as well as social media platforms (e.g. WhatsApp groups) or the company intranet. Staff can often get a petrol allowance, but not a public transport allowance – consider how this can be negotiated as an innovative policy within your business.



Provide suitable infrastructure: Minor changes to the basement or entrance could allow for the installation of lockable bike racks in secure areas for staff and visitors to use when they commute by bicycle. Provision of staff changing rooms and shower facilities also encourages active mobility.

The eco-mobility strategy should also promote the use of alternative fuel vehicles, which can be done via the identification of priority parking areas and the provision of refuelling or recharging stations (whilst not yet in huge demand, building owners should place this on their medium term capital expenditure list).

Reduce unnecessary travel: The final two aspects of the plan should be to actively reduce the need for building occupants to move around via private vehicle for short trips on one end of the spectrum and flights on the other. Complementary facilities should be developed in, or near, the building (such as a convenience store, ATM, pharmacy, hairdresser, gym, library, crèche), and the building should be equipped with video conferencing facilities which have been demonstrated as having the potential to dramatically reduce the need for business travel (especially flights).

4.5 How do we enhance our precincts?

4.5.1 Design for people, not cars

Transport and mobility planning at a precinct or neighbourhood scale, and broader, offers the opportunity to create a network of well-connected and well-located cycling and pedestrian routes. These need to be safe, clearly demarcated and well maintained. Pedestrian-friendly neighbourhoods do not develop overnight, and need planning

and suitably phased intervention that reflect the needs of the people. Part of the design of walkable neighbourhoods involves minimising street widths, hard and soft landscaping (such as the provision of trees and benches), encouraging appropriate retail activities such as coffee shops on the ground floor of commercial buildings and ensuring that store fronts are at a pedestrian scale. In a nutshell, think of towns or villages designed for people not cars, and where the streets can come alive as meeting places.

Another proposal is the provision of bike-sharing facilities, where people can “hire” or borrow a bike for a designated period of time, and either return it to where it was collected or to another drop-off point in the municipal area. This promotes a sense of community, reduces private transport dependence, and can also assist in stimulating new jobs and economic activity.





Case Study

Bike Share Programme eThekweni Municipality

As part of a broad Non-motorised Transport programme rolled out by the eThekweni Municipality, a bike share programme for staff members was piloted in 2013. This involved the provision of approximately 150 bikes dedicated for trips in and around Durban's central business district (CBD). The initiative was intended to encourage staff and councilors to use bicycles when commuting in the CBD, while raising the profile of cycling in the city and encouraging people to use bicycles to commute to and from work and to run errands.

The municipal bike share system operated along similar lines as the COP17 project whereby staff had access to a pool of bicycles located at municipal buildings within the inner city. Staff members wishing to make use of the bikes will be required to register their details on a bicycles tracking system, which is the same tracking system deployed for the COP17 bike share system. Registered staff can use any of the available bikes at the various share points, and can return the bike at a different location to where it was picked up, provided the drop-off destination has scanning facilities installed.

Source: <http://urbanearth.co.za/articles/ethekwini-bike-share-system-raises-cycling-awareness-durban>