GEARING CAPE TOWN'S PUBLIC TRANSPORT CORRIDOR STRATEGY TO MAKE CYCLING A SIGNIFICANT COG

ANDRE FRIESLAAR

HHO Africa Infrastructure Engineers, P.O.Box 6503, Roggebaai, 8012
andre@hho.co.za

ABSTRACT

During 2003, a task team comprising officials from the Provincial Government of the Western Cape and the City of Cape Town, formulated a new vision for public transport, termed the Mobility Strategy. The ultimate goal of the Mobility Strategy was to transform and restructure public transport in the Cape Metropolitan Area (CMA) with a focus on placing public transport, people and quality of life first, integrating all modes of public transport and pursuing sustainable transport (including bicycles and walking).

Two key pillars for the transformation and restructuring process were social/economic restructuring and transport restructuring. The objective of this corridor strategy planning process has been to implant the Mobility Strategy within the CMA. Based on the contextual review, the existing and future spatial and transport trends assessment, and the proposed corridor strategies, a preliminary public transport network has been proposed.

This paper takes a closer look into the contribution that cycling can make to achieve the goals of sustainable accessibility for all, within the context of the corridor strategy. Based on an understanding of the specific challenges facing Capetonians, the paper formulates strategies to overcome these challenges, thereby ensuring that future planning of the public transport system will maximise the benefits that cycling, as a partial or full trip mode, has to offer.

1. INTRODUCTION

During 2003, a task team comprising officials from the Provincial Government of the Western Cape and the City of Cape Town, formulated a new vision for public transport, termed the Mobility Strategy. The ultimate goal of the Mobility Strategy was to transform and restructure public transport in the Cape Metropolitan Area (CMA) with a focus on placing public transport, people and quality of life first, integrating of all modes of public transport and pursuing sustainable transport (including bicycles and walking) (Mobility Strategy, 2003).

Two key pillars for the transformation and restructuring process were social/economic restructuring and transport restructuring. The objective of this corridor strategy planning process was to implant the Mobility Strategy within the CMA. During 2004, the Draft Public Transport Corridor Strategy was prepared.

This paper reviews the realities facing cyclists in Cape Town and examines how the proposed Corridor Strategy can be used to make cycling a much greater contributor to urban mobility for all in Cape Town.

2. THE PUBLIC TRANSPORT CORRIDOR STRATEGY (Corridor Strategy, 2004)

The proposed vision of the Cape Metropolitan Area in terms of this corridor strategy is as follows:

"Cape Town will be restructured into an integrated and sustainable city, through the provision of a socially just, integrated and intermodal public transport system, that provides a high level of accessibility to economic, recreational and social opportunities for all.

The public transport system will be structured along corridors, along which public and private development will be encouraged and services will operate all day, at high frequencies and be safe, affordable (for urban poor), reliable, efficient, convenient and accessible.

Social and economic restructuring of the City will be encouraged at the highly accessible nodes where these corridors intersect."

The proposed public transport network is made up of links, nodes and stops. The links forming the public transport network have been classified into three broad categories as follows:

- The Accessibility Network
- The Mobility Network and
- The Community Services Networks (or Feeder Networks)

2.1 Accessibility Network

The concept upon which this part of the system is based aims to strengthen the development and perception of the public transport network as a system. The accessibility network can best be described as an "accessibility grid" that is stretched across the City.

The accessibility network would comprise of the following:

- The rail network which would form the backbone of the grid
- The balance of the grid would be made up of strategic road based routes that best complement the rail network and provide the required level of coverage for the metro area (i.e. 90% of the population living within 1km of the accessibility network)(Queensland DOT).

The accessibility network has further been subdivided into the primary accessibility network comprising the rail network and road based routes that will ultimately require dedicated right of way (DROW) and the secondary accessibility network comprising road based routes that will not require DROW, but which may require public transport priority measures.

Services on the accessibility network would operate throughout the day, at relatively high frequencies and on fixed schedules. The following route characteristics have been taken into account in selecting the appropriate accessibility road based routes:

- Activity routes with a high concentration of commercial activity and public amenities i.e. along centre of gravity of future development corridors.
- Routes with a high concentration of higher order institutional facilities such as universities, technicons, hospitals, schools etc.
- Routes with good coverage i.e. have high densities of residential development within 1 km on both sides of the route
- Routes which border on or travel through agglomerations of industrial and commercial activities
- Routes which provide access to heritage, recreational and tourism destinations
- Routes with the ability to interconnect the most origins with the most destinations
- Routes which are relatively direct and along which reasonable travel speed can be maintained during the off peak. If required, sufficient road reserve exists along the route to provide public transport priority to ensure peak period mobility. Typically the routes should be Class 3 routes or low speed Class 2 routes (60 km/h).
- Routes should encourage high pedestrian and cyclist connectivity to maximise exposure to public transport.

2.2 Mobility Network

In order to reduce commuting travel times during peak periods and in order to provide metro wide mobility, a mobility network has been formulated, in addition to the accessibility network. The mobility network can best be described as a "mobility grid" that is stretched across the City.

To redress the apartheid city, mobility should be afforded to those who live far from places of work. While the long term strategy should be to create employment and commercial opportunities in close proximity to lower income areas (thereby minimising trip lengths), the provision of a mobility network will effectively "shrink travel distances (or times)" for the majority of commuters in the short term.

The mobility network would comprise of the following links:

- Strategic road based routes that facilitate high speed movement across the metro area (i.e. freeways, expressways and high speed Class 2 arterials).
- Certain rail links that could facilitate high speed movement across the metro area

Services on the mobility network would operate on fixed schedules throughout the day at high frequencies during the peak periods and at low frequencies during the off peak periods

2.3 Community Services Networks (or Feeder Networks)

The proposed community services networks would include distribution services within CBD's, and feeder services within neighbourhoods. Community services networks would perform the function of local collection and distribution of passengers to and from the accessibility and mobility networks at the appropriate interchanges/stations.

2.4 Nodes

Nodes on the public transport network have both a transport role and land use role. They reflect points at which the public transport can be accessed or where a change in the direction of movement (transfer) can occur, and should thus be supported by public transport interchange facilities. They are also places in the network, which due to their accessible nature, can and should accommodate an agglomeration of commercial, recreational, institutional and residential uses.

It is important to note that points on the public transport network are not equal. They vary in terms of their level of accessibility and levels of activity they support. A hierarchical system of nodes is thus proposed which reflects both their importance in the transport network and as points which present possibilities to reinforce or encourage agglomerations of activity. Where possible, points of greatest access and with the highest potential for transfer on the accessibility network, should be (or are already) reinforced by high agglomerations of activity.

As a means toward defining the system, a set of nodes has been identified according to the following criteria:

- Existing or planned agglomerations of activity (reflecting the need for greater equity in the distribution of social and economic opportunities)
- Potential points of interconnection between links on the accessibility, mobility and community services network.

The transport/land use role of these nodes should be defined at a corridor and local area level and future planning should reinforce existing nodes on the public transport network and support the development of emerging nodes.

2.5 Proposed Public Transport Network

The combination of the proposed accessibility and mobility networks is indicated in Figure 1. Using the 1996 census data, it has been established that approximately 80% of the population of the Cape Town metropolitan area, live within 1 km of the proposed accessibility network. This coverage reduces to 43%, if the distance from the accessibility network reduces to 400 metres, which is universally defined as a comfortable walking distance.

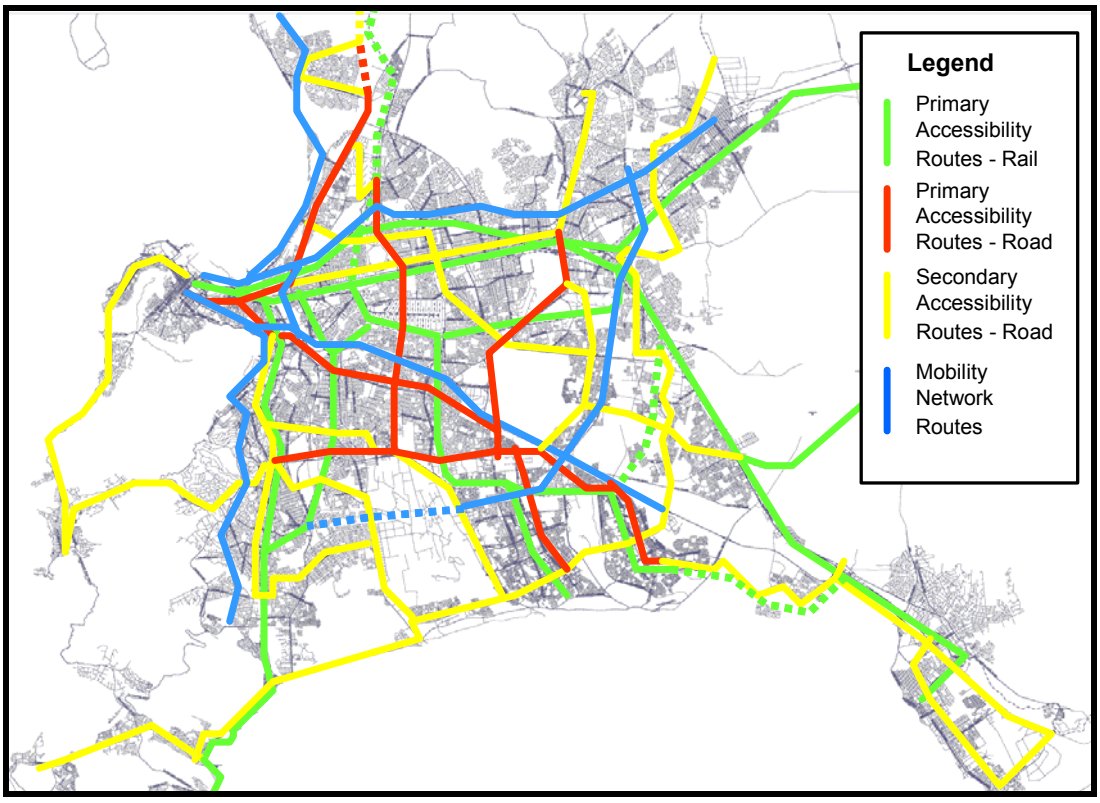

FIGURE 1: DRAFT PUBLIC TRANSPORT NETWORK – ACCESSIBILITY & MOBILITY NETWORKS

The existing and planned agglomerations of activity and the potential points of interconnection between links on the accessibility, mobility and community services networks, have been superimposed on the accessibility network (Refer to Figure 2).

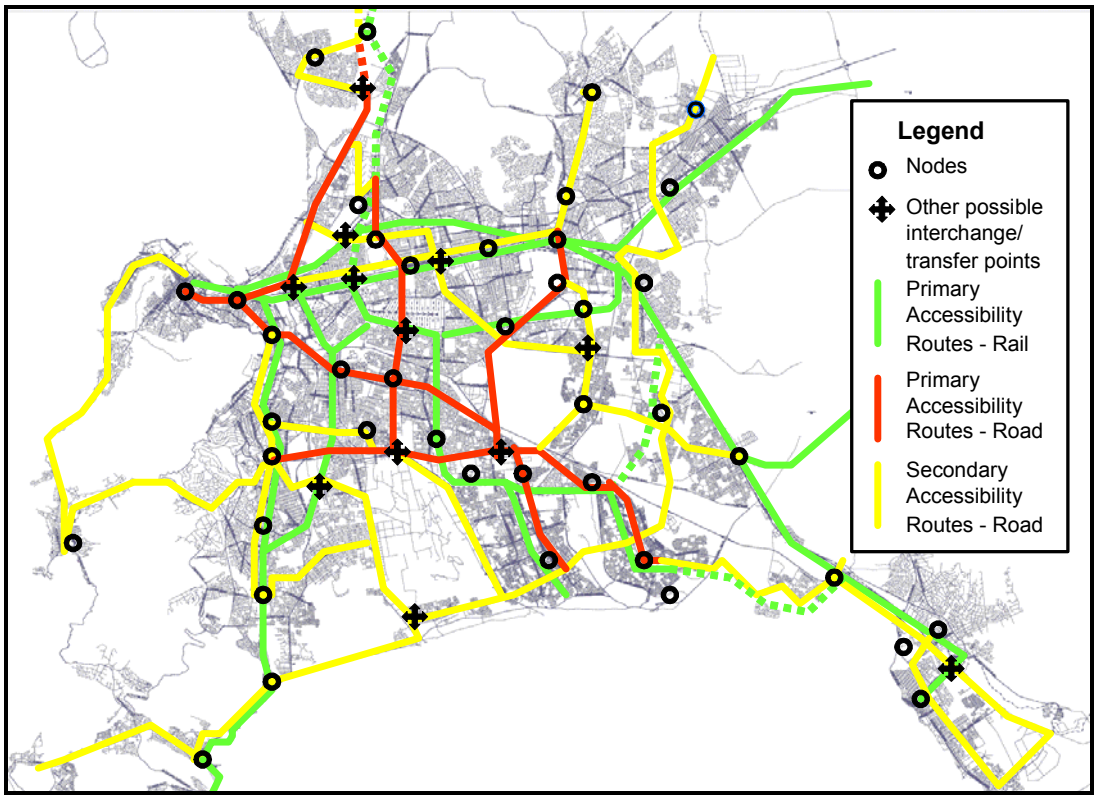

FIGURE 2: DRAFT PUBLIC TRANSPORT NETWORK – ACCESSIBILITY NETWORK, NODES & OTHER POSSIBLE INTERCHANGE/TRANSFER POINTS

3. REALITIES FACING CAPE TOWN TRAVELERS

3.1 Socio-Economic Considerations

Income and Employment

Twenty six percent (26%) of the economically active population of the City of Cape Town earn less than R 1 000 per month (±US $ 170), while a further 40% earn between R 1 000 and R 2 500 per month (±US $ 170 and US $ 420) (Cape Town Website, 2005). Therefore, a staggering 2/3 of the economically active population earn less than R 2 500 per month and approximately 20% of the economically active population is unemployed.

With the above unemployment and income statistics, bicycle ownership is low within this segment of the population. Within the higher income segments of the population, bicycle ownership is higher, but the majority of these bicycles are geared more towards recreation sporting activities such as mountain biking or road racing, and hence may not be appropriate commuting bicycles (too expensive to leave locked in a public lock up facility).

Housing

Approximately 19% of the population live in informal housing (Cape Town Website, 2005). Formal subsidised housing is being provided on an ongoing basis and the majority of these houses have a floor area of approximately 30 m^2 (i.e. 5 m by 6 m). In these lower income communities, these

units often have to accommodate a family plus members of their extended family, resulting in overcrowding.

The safe storage of bicycles in these low income communities in informal housing and subsidised housing is a practical concern. Bicycles, however, take up a lot less space than motor vehicles.

3.2 Long Travel Distances

The greater Cape Town Metropolitan area measures approximately 40 km in the east-west direction by 40 km in the north-west direction. Due to the previous government policies, a large proportion of the population (mainly the lower income group) live far from opportunities. The average trip length measured during 1995 was 14 km, whereas the low income categories trip length was 15.5 km (Moving Ahead, 1998).

The mismatch between employment and population within the Cape Town Metropolitan Area, together with the large commuting distances, places a heavy travel cost on the lower income population and results in a high level of subsidy being sought for public transport to serve these desire lines. Furthermore, the time spent travelling by these lower income groups is high due to long travel distances and slow travel speeds on the transport system.

Daily commute travel distances of more than 8 km by bicycle, are not practical for the majority of the population. For children, the daily commute distance should not be more than 2 km. The commonly accepted no sweat cycle distance for adult cyclists is 2.5 km. Based on these recommended threshold distances, bicycle commuting is not practical as the primary mode of transport in Cape Town, due to the very high average trip length.

3.3 Climatic Conditions

With mean monthly maximum temperatures ranging between 17 ºC in winter and 26 ºC in summer, Cape Town has a favourable climate (Cape Town Website, 2005). The annual average rainfall for the city is 550 mm, with the majority of this falling during the winter months (April to August). This winter rainfall is accompanied by north westerly winds, with a maximum hourly average speed of 75 km/hr. During the summer months, a south easterly wind blows with similar maximum hourly average speeds.

Cyclists, with a reasonable level of proficiency, can manage to cycle safely in moderate wind conditions. In very windy conditions, gusts of wind can blow cyclists into the traffic stream of parked vehicles/kerbs on the side of the road. It is also far easier for cyclists to cope with a tail wind rather than a head or cross wind.

Cape Town is a windy city, with winds which blow relentlessly throughout both the summer and winter months, making bicycle commuting all the more challenging and unsafe.

3.4 Safety and Security Concerns

Due to high levels of unemployment and inadequate levels of police enforcement, crime is a major concern facing travellers within the Cape Town Metropolitan Area. The lack of personal safety and security, together with an inadequate public transport system, has led to a propensity for people to own and use a private motor vehicle to travel within the city. The minibus taxi industry has also flourished, due to its ability to pick travellers up at there doorsteps and deliver them to “safe” destination areas.

Areas where previously hundreds of scholars utilised bicycle paths to get to and from school, now only accommodate a few scholars, due to fears that scholars will be abducted or mugged and/or have their bicycle stolen.

3.5 Lack of Pedestrian/Bicycle Facilities

The identified bicycle network within the Cape Town Metropolitan Area is far from complete. In fact very few sections of the network have been constructed or signed. End user facilities for cyclists are also extremely limited. At a few railway stations, a few bicycle lockers remain from an era where cycling was promoted more actively. There is no sense within the metropolitan area that Cape Town is a "city geared towards cycling".

No allowance is made on trains, buses or taxis for taking bicycles on board. Certain lock up facilities at rail stations are inadequate as they allow access to the locked bicycle where parts can be removed i.e. saddles, wheels etc. Very few work places provide a shower and lockers for cyclists.

3.6 Lack of Integrated Planning for Cyclists

Cycle commuting is highly dependant on a number of requirements jointly being met. These requirements are as follows:

1. Bicycle availability
2. Secure bicycle storage facilities at both ends of the commute (origin and destination)
3. Safe and secure bicycle routes between origin and destination
4. Reasonable trip lengths
5. Favourable weather conditions

Should one of the above conditions not be met, the attractiveness of cycle commuting diminishes significantly, resulting in people choosing a less complicated travel mode. Therefore, for cycling to become an attractive travel alternative, the City's planning authorities need to take an active role in ensuring that all of the above requirements can be met simultaneously. At this stage, there is a lack of this level of planning for cycle commuting within the Cape Town Metropolitan area.

4. GEARING THE TRANSPORT SYSTEM TO OVERCOME THE CURRENT REALITIES

The Corridor Strategy provides the platform with which the City can address the integrated planning required for cycle commuting to become an attractive travel choice. The opportunities provided by the Corridor Strategy are as follows:

- Gearing the public transport system to be fully integrated with the bicycle networks i.e. the provision of safe and secure bicycle paths between communities and public transport stops, interchanges and major nodes.
- The provision of secure lock up facilities for bicycles at public transport stops, interchanges and major nodes.
- The provision of a public transport system which encourages cyclists to bring their bicycles on board the public transport vehicles.

Based on the proposed public transport network indicted in Figure 2, the entire metropolitan area should be within 2.5 km (no sweat zone) of a public transport route and within 8 km of a node or transfer point. This would allow all people within the metropolitan area to access the public transport system by bicycle, after which they could either take their bicycle on board the public transport vehicle or lock their bicycle in a secure facility and continue their commute by public transport. The short cycle distances provided by the public transport network, reduce the effects of adverse weather conditions and minimise the exposure of cyclists to crime and traffic on the feeder system.

5. CONCLUSION

The proposed public transport Corridor Strategy provides the City of Cape Town with a platform with which to move towards an integrated spatial and transport future, geared around a socially just, effective and integrated public transport system. By gearing the bicycle network around this public transport network, it is possible to achieve a 100% coverage of the Metropolitan area within 2,5 km of this public transport network, which would make cycling a cost effective feeder service to public transport for all Capetonians. Finally, the integration of cycling with public transport through the provision of secure lock up facilities and through the provision of public transport vehicles which allow bicycles to be brought on board, would significantly increase the attractiveness of cycling as a partial trip mode.

6. REFERENCES

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