

## **LIST OF APPENDICES**

**APPENDIX 1:  
TRANSPORTATION SYSTEMS ASSESSMENT:  
STATUS QUO REPORT**



## MDANTSANE URBAN RENEWAL PROGRAMME



# MOUNT RUTH NODAL PRECINCT

## TRANSPORT SYSTEMS ASSESSMENT : STATUS QUO REPORT

FINAL DRAFT

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# MOUNT RUTH NODAL PRECINCT

## MOUNT RUTH TRANSPORT SYSTEMS ASSESSMENT: STATUS QUO REPORT

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## **1.0 INTRODUCTION**

### **1.1 Background**

Stewart Scott International has been appointed by Buffalo City Municipality to undertake, amongst other tasks, the assessment and planning of the transport facilities for the Mount Ruth Nodal Precinct project.

Mount Ruth is located at Mdantsane, close to the N2 freeway between King William's Town and East London. The project is part of the Mdantsane Urban Renewal Programme. The aim of the Mount Ruth project is the development of a mixed land use node in a comprehensive and integrated manner, utilizing the public transportation accessibility provided by the Mount Ruth Railway Station and the proximity to the N2 national road.

This report covers the existing transport situation to identify future needs to serve the Mount Ruth Node, in the context of the overall transportation planning for the project.

### **1.2 Scope of Work**

The scope of work consists of the following tasks under Phase 1A – Transportation from the Terms of Reference.

#### **1.2.1 National Route N2 Interchange at Mount Ruth**

- Assessment of the physical feasibility of the proposed interchange in terms of geometry and traffic operations as well as impact on existing infrastructure;
- Assess viability of the interchange in terms of potential usage and impact thereof;
- Liaison with SANRAL;
- Alternatives and additional considerations.

#### **1.2.2 Transport Systems at Mount Ruth Development Node**

- Assessment of the future public transport operations to stations under full development of the rail between Berlin and East London as per the Public Transport Plan (PTP) with buses and taxis operating as feeders from Highway taxi rank and elsewhere;
- Assessment of taxi operations in terms of future projections for full development of the rail system as per the PTP, with the consideration for the implementation of a pilot bus service to the station;
- Assessment of accessibility to Mount Ruth Nodal Precinct as well as safety issues related to pedestrians and non-motorised transport from within the study area;
- Conducting rail passenger interview surveys to obtain origin and destination information;
- Establishment of pedestrian and non-motorised transport desire lines.

### 1.3 Approach

The first step in the preparation of the transport status quo for the node was to obtain and study existing documents which prescribe planning requirements or which contain relevant information as input to the planned or existing situation around the node. The documents which were obtained and reviewed, included the following:

- Buffalo City Municipality - Public Transport Framework Plan (April 2003);
- Mdantsane – East London Corridor Development Framework (November 1999);
- Buffalo City Municipality – Interim Transport Plan (2003/2004);
- Buffalo City Municipality – Current Public Transport Records (2001);

The next step in the process was to contact the relevant stakeholders who are involved in the transport operations (both private and public) for the additional information that will assist in the analysis of the existing situation. The stakeholders that were contacted included the following:

- Buffalo City Municipality;
- South African National Roads Agency Limited (SANRAL);
- South African Rail Commuter Corporation (SARCC);
- Spoornet
- EC Department of Roads and Public Works;
- Mayibuye Transport Corporation;
- Various Taxi Associations operating around the Node.

The final step was to conduct site surveys to determine pedestrian and traffic flows associated to and via the node.

## **2.0 AVAILABLE TRANSPORT PLANS**

### **2.1 Mdantsane East London Corridor Development Framework (MELD)**

The MELD was published in November 1999. Its main vision was to promote the development of the corridor in which transport land use and local economic development work together to stimulate development benefiting local communities and Buffalo City as a whole.

The report contains goals for the development of the corridor under the headings of Public Transport, Economic Development, Housing, Environment, Services, Facilities & Amenities and Institutional.

#### **i) Goals for Public Transport**

To provide a viable and safe public transport system and improve access to opportunities, in particular to promote public transport, higher urban densities and more efficient movement patterns.

#### **ii) Goals for Economic Development**

To stimulate economic development by creating an appropriate climate for private sector initiatives.

#### **iii) Goals for Housing**

To increase housing densities and create well located opportunities for new housing.

#### **iv) Goals for Environment**

To promote the appropriate use of natural resources and to respect the natural characteristics of the area.

#### **v) Goals for Services**

To provide basic infrastructure that supports and encourages new private sector development and housing.

#### **vi) Goals for Facilities and Amenities**

To improve access to facilities.

#### **vii) Goals for Institutional**

To ensure effective participation of all role players and to improve the quality of service of the local government.

## 2.2 Public Transport Framework Plan

The plan includes the following transport information:

- i) A long term vision for road and public transport in the Buffalo City area;
- ii) Goals, strategies and priority issues for BCM;
- iii) A description of the status quo of transport in Buffalo City.

The Public Transport Plan (PTP) has not as yet been drafted for BCM, the PTP will emanate from the guidelines as illustrated on the Public Transport Framework Plan.

It should be mentioned that the plan has three alternative future scenarios, namely:

### *Scenario A – A reformed minibus operation and an upgraded railway*

This scenario is based on a reformed minibus taxi system without any formal fleet bus operations. The regulated minibus taxi services have developed to cover the complete public transport system for Buffalo City with regulated and licensed routes. The system is also complemented by the existing railway operations that operate with improved operations and shorter travel times. This system is described as a regulated market-driven system.

### *Scenario B – A trunk bus network operation together with feeder and local systems (no railway)*

This scenario is based on a railway system that is replaced with trunk bus routes operated by high capacity buses. Mini and midibus taxis provide feeder services from the surrounding areas to transfer points along the trunk bus routes but are not allowed to operate parallel with the trunk bus lines or on major bus routes.

### *Scenario C – An upgraded railway operation with feeder and local bus and minibus system*

In this scenario the railway is the backbone in the public transport system. It is the trunk line on the north side of Buffalo River whilst buses operate the trunk line on the south. Passengers are transported between residential areas and the railway stations by feeder systems (mini or midibuses or ordinary buses) depending on the demand. The feeder system form an integral part of the local public transport system which will be significant in making the railway more attractive. This is the system where an integrated through-ticketing system could be offered with the commuter bus route to supplement the railway service implemented at peak periods.

The plan compares the three scenarios under the headings of Travel Standards, Economics, Environment, Traffic safety and Other Impacts (Social and Spatial). The plan concludes in its scenario analysis that:

*The analysis indicates that Scenario C will best achieve the goals set up for public transport in Buffalo City.*

### 2.3 Interim Transport Plan

The Plan provides the overall goals and objectives as follows:

- *To meet the mobility needs of the Buffalo City Metropolitan Transport Area through the provision of transport infrastructure;*
- *To enable customers requiring transport for people or goods to access the transport system in ways which best satisfy their chosen criteria;*
- *To improve the safety, security, reliability, quality and speed of transporting goods and people;*
- *To improve South Africa's competitiveness and that of its transport infrastructure and operations through greater effectiveness and efficiency to better meet the needs of different customer groups, both locally and globally;*
- *To invest in infrastructure or transport systems in ways which satisfy social, economic or strategic investment criteria;*
- *To achieve the above objectives in a manner which is economically and environmentally sustainable and minimises negative side effects.*

### 2.4 Current Public Transport Records

#### Minibus Taxi Services

There are approximately 106 minibus taxi trips per day from Mdantsane Highway to Newlands, via Mount Ruth Station. This is a turnover of approximately 1500 passengers. There are three taxi associations operating along the route, namely:

- Mdantsane East London Taxi Associations (MELTA);
- Mdantsane Uncedo Service Taxi Association (USTA);
- East London Taxi Association (ELTA).

#### Bus Services

Mayibuye Transport service is the only bus service that is operating on two routes via Mount Ruth Station. There are approximately 500 trips per month from Mdantsane and 100 trips per month from East London, both to Newlands. The service is not available on non-working days (i.e. public holidays and weekends).

#### Train Services

There are two types of trips that exist from East London via Mount Ruth, the long distance and the local. Both these trips do stop for passengers at the Mount Ruth Station. Metrorail (East London) intends extending its local route to King William's Town in the near future.

For local route, there are 25 trips per day (both direction) between East London and Berlin. For passenger turnover, see Appendix B.

### 3.0 SURVEYS

In order to determine traffic and pedestrian flows within the node, traffic and pedestrian surveys were conducted. These are detailed in the sub-sections below.

#### 3.1 Traffic count

The purpose for the survey was to determine the traffic movements at the two existing intersections. Observers were stationed on the two intersections (Billie Road/Voortrekker Road and Newlands Road/Voortrekker Road). The observers recorded vehicle turning movements, vehicle types (car, taxi, bus or heavy) in fifteen minute intervals in the morning (06:00 to 08:00) and evening (16:00 to 18:00).

The results of the survey are appended as Appendix A and shown diagrammatically in Figure 1. The significance of the survey is that:

- The peak hours were found to be between 07:00 and 08:00 and between 16:00 and 17:00 respectively.
- The public transport (excl. rail) ranges from 5% to 10% of the total traffic during the peak hours with private vehicles up to 88%.
- Heavy vehicles range from 5% to 8% of the total traffic between the two intersections.

From the survey, expected traffic volumes could be determined, especially heavy vehicles on the Newlands Road, as there is an existing construction quarry north of the N2.

#### 3.2 Pedestrian Survey

The main purpose of the pedestrian interview survey and count included the determination of the pedestrian desire lines to the railway station and the general problems that they encounter. Two observers were stationed on either side of the two station entrances (north and south of the station) with questionnaire interview forms. Another observer was stationed at the entrance/exit to the platform to count the number of passengers entering or exiting the platform.

This will determine the pedestrian flow paths as shown in Figure 2. The figure shows the main pedestrian flows within the study area. The thicker the flow lines on the map indicate a higher volume of pedestrians. The results of the two hour counts show an average walking time of 10 minutes which converts to a walking distance of 800m to 1000m. A majority of pedestrians walking to the station from Mdantsane originate partly from Zones 1, 4 & 6 and from the squatter camps (i.e. Masibambane, Masibulele, etc.) situated within the walking distance to the station. The total pedestrians counted from the south of the station (Mdantsane) for the two hour morning period was 603. From the north (Newlands) to the station a total of 431 pedestrians were counted in the same period with the main flows mainly from Eluxolweni. These rail commuters access the Mount Ruth Station by crossing the heavily trafficked R102 Arterial with a through traffic that is running at high speed. The total pedestrian counted include those that are dropped off by public transport (bus/taxi) to the station. The summarised results of the pedestrian counted are appended as Appendix B. It should be mentioned that there were some pedestrians witnessed crossing the N2 from the north as shown on the map. There were no bicycle movements witnessed and this may be due to the steep terrain of the areas.

A total of 150 pedestrians (1,0% of total pedestrian counted) were interviewed (64 from Mdantsane and 86 from Newlands). Some of the problems mentioned during the pedestrian interviews are highlighted in Appendix C as attached in the report.

The existing roads steep terrain do not accommodate the use of bicycles. The allowable grade for cycle paths is 3% or less and these roads have grades that are in excess of the allowable grade. Other discouraging factors for cycle paths are the long distance to the employment areas, safety and condition of existing roads.

#### 4.0 EXISTING MAJOR ROADS

The roads that are identified as most important for the development are highlighted in Figure 3. These roads are also listed on the BCMET ITP as Roads of Metropolitan Significance (ROMS).

The following is an extract from the BCMET ITP for the description of ROMS:

*In order for a road to be designated as being of Metropolitan Significance, the following criteria shall be satisfied:*

*1). The road shall be part of the accepted Metropolitan Transport Network. Such classification means that the road is not only important for the movement of people locally, but that it also carries a significant proportion of the people travelling either through or between the main population centres within BCMET, or*

- The road serves a land use of metropolitan significance;*
- The road serves a land use of metropolitan, provincial or national strategic importance;*
- The road forms a major link between portions of the metropolitan area or between roads of metropolitan significance.*

*2). Notwithstanding the above criteria, any road may be motivated for improvement for any other specific reason deemed necessary by the Metropolitan Transport Advisory Board. Examples include a short link between two metropolitan routes which form part of an important public transport route, access to an intermodal transfer facility such as a railway station taxi rank and similar such projects.*

These major roads are listed below in no priority order:

- National Route N2;
- Voortrekker Road (R102);
- Newlands Road;
- Qumza Highway;
- Billie Road;
- Toyana Road.

The **National Route N2** is a national road that, by the provision of an interchange, can play a vital role in traffic management on the node. Additional details about the interchange are covered in the Interchange Concept Planning Report.

The **Voortrekker Road (R102)** is a Provincial main road which runs parallel to the N2. The R102 is a two lane single carriageway road with surfaced shoulders approximately 1.5 m wide. It is heavily trafficked and the level of service is probably sub-standard for the current volumes. A total of approximately 1500 vehicles (June 2004) during the peak hour were recorded during the traffic count. There are no formal bus bays or taxi stops on the road, except those that were recently constructed at pedestrian access points to the station which are inadequate. Vehicles were noted stopping on the surfaced carriageway to drop off or pick up passengers. The road surface is reasonably sound with occasional cracking and potholing. Deformations and edge break were noted in places. Although a detailed visual assessment has not been carried out, it would appear that rehabilitation measures and a reseal are required. Generally, the road will require upgrading to accommodate for the future travel demand of the proposed development.

**Newlands Road** is a major arterial that runs south from R102 to the National route N6. This is the only road that links the Peri-Urban Newlands Area with the Mount Ruth station and Mdantsane. The road has a high volume of pedestrians during the morning and evening peak periods. Approximately 1000 pedestrians were recorded during the pedestrian survey (June 2004). There are no sidewalks on the road except for the first few metres. Pedestrian safety on the road is compromised as they must cross the R102 to gain access to the station. The road surface is sound with occasional potholes in isolated sections.

**Qumza Highway** is an arterial road that has been dubbed as the “Gateway” to the Mdantsane area. This is the access arterial to the Mdantsane area. The road has recently been upgraded and is in a good condition. The road is a four lane two way traffic with traffic calming measures situated at the intersections. This is a heavily trafficked road as it is the core access of Mdantsane.

**Billie Road** is an arterial road which runs south from the R102 with a rail overpass bridge to Qumza Highway, a major arterial for Mdantsane area. Billie Road is an important link from Newlands and the surrounding northern areas and is also a direct access route to a major hospital (Cecilia Makiwane Hospital), where a minor taxi rank is currently situated. It is a two lane single carriageway road with sound surfacing. There are available bus stops and limited sidewalks for pedestrians. There are a number of major developments along the road that are currently under proposal, including the proposed Indoor Sports Centre. With the proposed N2 interchange and extension to Newlands Road<sup>1</sup>, these will have a major impact on Billie Road as additional traffic will be generated.

**Toyana Road** is an arterial road that is located south of the station and provides a link from the station directly to the Mdantsane CDB (Highway taxi rank). It also provides a public transport corridor with Billie Road and Qumza Highway. Toyana Road is a two lane single carriageway road which is approximately 5.5m wide with unsurfaced shoulder. It has no direct link to the R102, north of the station, except via Billie Road. The road carries a high volume of pedestrians to the station. There are no sidewalks available for pedestrians and a few bus stops are available on the road. The road surface is in a sound condition with occasional cracking and potholing. Edge break and inadequate road signage were noted in places. Upgrading of the road in the future will be required if linking of the Mdantsane Highway and the station is one of the objectives. Further extension of this road over the railway line to the R102 will be essential for the improvement of access to the development node.

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<sup>1</sup> N2 Interchange Concept Planning Report prepared by Stewart Scott International, October 2004.

## 5.0 CONCLUSIONS

From the analysis, as described above, the following is a summary of the existing situation:

- a). Up to 8% of existing traffic on the R102 are heavy vehicles.
- b). Pedestrian facilities (e.g. sidewalks) to accommodate pedestrians on the existing roads are inadequate.
- c). Newlands rail commuters access the station by crossing a heavily trafficked R102 road.
- d). Lack of street lighting at pedestrian paths is one of the safety threats for pedestrians.
- e). Some of the existing roads to the development node are in poor condition in isolated places and need maintenance.
- f). Toyana Street is an important link between Mdantsane Highway and the station and upgrading of this road will be essential for this purpose.
- g). Qumza Highway, Billie Road, R102 and Toyana Street: these roads are essential to be linked to develop a public transport corridor that will not only contribute to the introduction of a public transport feeder line to the Mt Ruth station but also to introduce a direct link from the Mdantsane CBD to the railway station.
- h). Upgrading of R102, with the introduction of pedestrian and public transport facilities, will be essential for access improvement and the promotion of public transport service on the Node.

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