

DRAFT TECHNICAL NOTE

TRANSPORTATION

CENTRAL AREA AND CBD EXTENSION NODE

Local Area Plan

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This technical note represents the Phase Two Deliverable for the Central Area and CBD Extension Node Local Area Plan.

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Prepared for
Msunduzi Municipality



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1 INTRODUCTION

1.1 PURPOSE AND APPROACH

The purpose of this technical note is to provide the current reality in the Central Area and CBD Extension Node (CBD) area of Msunduzi with respect to Transportation, in the form of a situational analysis.

The intention of this situational analysis is to develop an integrated understanding of the strategic and local contextual attributes of the study area with respect to development trends, pressures, issues, problems, potentials and current transportation management systems.etc

This technical note focuses on:

- A review of the existing transport network.
- Cataloguing of previous/current relevant studies.
- Meetings with involved Transport Authorities
- Identification of Gaps/Missing Information
- Identification of Major Issues.

1.2 THE STUDY AREA

The study area is approximately 16km² in extent and incorporates the whole of the Pietermaritzburg Central Business District (CBD) and area immediately adjacent.

The northern boundary extends around most of Town Hill Hospital and Greys Hospital, through a portion of Northern Park and includes the residential suburb of Chasedene, Liberty Midlands Mall and what is referred to as the CBD Extension Node. The eastern boundary extends along the N3 and incorporates the suburb of Manor, but excludes the Scottsville Racecourse. To the south the boundary incorporates the recreational precinct area of Alexandra Park and the Harry Gwala Stadium, and the suburb of Napierville. To the west the boundary extends towards the suburb of Prestbury terminating just beyond the Rail Yard off Mayors Walk and then generally follows the Dorpspruit Stream towards the Royal Showgrounds.

The project area has been extended where appropriate especially as this relates to interfaces with adjacent transport systems.

2 BACKGROUND INFORMATION

2.1 EXISTING ROAD NETWORK

The existing road and rail network in the Msunduzi CBD Local Area Plan is shown below (larger version attached as Annexure A).



The most significant roads that either traverse or are encompassed in the CBD LAP are:

- National Route 3-2 (N3) (Freeway)
- National Route 3-3 (N3) (Freeway)
- Provincial Main Road 1 (R103) (Old Main Road)
- Provincial Main Road 5-4 (P5) (Richmond Road) R56
- Provincial Main Road 7 (P7) (Greytown Road) M10
- M80 Berg Street
- M80 Pietermaritz Street
- M80 Edendale Road
- M70 Langalibalele Street
- M70 Jabu Ndlovu Street

- R56 New England Road

Other roads in the network are controlled by the Municipality and generally serve local access needs.

Major interchanges on the National Route that are located within the study area are the:

- Ohrtmann Interchange
- Chota Motala Interchange
- Sanctuary Interchange
- Chatterton Interchange

2.2 EXISTING RAIL NETWORK

The mainline between eThekweni and Gauteng passes through Msunduzi. This is primarily a goods line, although there is also an inter-city passenger service using this line.

Apart from the mainline there are a number of branch lines which radiate from Msunduzi, providing connectivity with many of the towns and centres in the District and beyond. These lines are used almost exclusively for freight services and whilst some of these branch lines could be used for passenger services, the demand would be inadequate to provide a reasonable service frequency for daily work-type trips and any service provided would be uneconomical.

2.3 PREVIOUS STUDIES

There have been numerous planning and design projects that have been undertaken over the years that relate to various degrees to traffic and transportation issues in the area under review.

Previous studies or available information with the most relevant data to this Local Area Plan exercise are (but not limited to) the following:

- Bus/Rail Study for Greater Edendale, May 1980 (City Engineer's Department, Pietermaritzburg).
- Investigation into the viability of providing a Light Rail Transit System into the Edendale Valley as an Alternative Mode of Public Transport, August 1986 (City Engineer's Department, Pietermaritzburg).

- Assessment of the Viability of a Light Rail Transit System for Edendale, September 1989 (PMBMET Transportation Study, SEBCON Consortium).
- **Interim Transport Plans - PMBMET:** Work undertaken as part of the PMBMET Metropolitan Transportation Study is contained in documented annual Interim Transport Plan documents.
- **Metropolitan Major Road System Proposals (1990):** This report set out a proposed future major road network to support the on-going growth in the city. The 'PMBMET MAJOR ROAD SYSTEM PROPOSALS KEY PLAN' is shown below (larger version attached as Annexure B). Although this plan is several years old, the majority of the proposals are still relevant.



- **CPTR (2002): Current Public Transport Record** - This comprehensive exercise led to the compilation of a detailed record of all public transport movements and routes throughout the area. Annexure C shows all routes and ranks identified in this exercise.
- **Public Transport Plan (2005):** This plan was commissioned by the uMgungundlovu District Municipality. The plan covers a programme of action with regard to studies required and a five-year plan of infrastructure needs in the area.
- **N3 PMB Bypass Traffic Study (2004):** This study was commissioned by the South African National Roads Agency Limited. The study determined the on-going capacity improvements required in the N3 freeway corridor within this area.

- **Market Road Interchange and Greytown Road Interchange Study (2006):** This study was a joint initiative of the Municipality and the South African National Roads Agency Limited following initial work covered by the PMB Bypass Traffic Study (see above). The report details the specific major improvements required at both the Market Road and Greytown Road interchanges on the N3 freeway.
- **Msunduzi Traffic Model (2006):** A traffic modelling project for the municipality is available and may inform this project.
- **Msunduzi Integrated Development Plan (2011):** Data from the IDP initiatives will be a vital input into this project.
- **Annual Traffic Counts and Public Transport Counts:** As part of the PMBMET project traffic volumes on the Central Area cordon and screen-lines have been collected on an annual basis. Public Transport vehicle and passenger volumes throughout the city have also been collected on a regular basis. This data set will provide very robust input to the Msunduzi Local Area Plan project.
- **uMgungundlovu District's Current Public Transport Record/Public Transport Plan revision project (date):** This exercise was undertaken recently and the final report is imminent.
- **Implementation of an Integrated Rapid Public Transport Network (IRPTN) in Msunduzi, Scoping Study (March 2008):** This study identified and assessed the feasibility of a Bus Rapid Transport system for Msunduzi.
- **Non-Motorised Transport (NMT) Project (2009):** A policy document detailing needs and requirements for the formalisation of a non-motorised transport system within the Msunduzi Municipality has been compiled.
- **Spatial Development Framework (2009):** This document gives a broad assessment of transportation needs in the area. Data from the SDF initiatives will be a vital input into this project. The map showing 'NODES AND ROADS' from the SDF is shown on Annexure D.
- **Comprehensive Integrated Transportation Plan - Draft (2010 to 2015):** This document correlates, reviews and updates previous transportation reports and planning.
- **Integrated Rapid Public Transport Network (IRPTN) in Msunduzi (current):** The IRPTN is currently in the planning and development stage and this will inform many aspects of the CBD LAP.
- **Traffic Count Information Mega Yearbook 2011.** The South African National Roads Agency SOC Ltd. have produced a yearbook which comprehensively details their road network both in terms of infrastructure and traffic. Pertinent traffic information has been extracted from this document and is incorporated in this report as Annexure E.

- **Future Planning National Route 3 (current):** The South African National Roads Agency SOC Ltd. is at present assessing the future needs along the N3 corridor.

2.4 REVIEW

During the review of the existing available information several deficiencies, inadequacies and omissions were identified, viz

- Existing Road Classifications in the CBD do not correspond to latest National Department of Transport (DoT) Roads Infrastructure Strategic Framework for South Africa (RIFSA) guidelines. The KwaZulu-Natal: Department of Transport (KZN:DoT) have recently commenced a Road Classification project that identifies and classifies all Public Roads in the province to the RIFSA standards. Preliminary findings should be available during May 2013.
- Traffic volumes on the municipal controlled roads are limited to specific sections of roads or major intersections. The information is generally not sufficient for planning purposes. At present uMgungundlovu District Municipality (incorporates CBD area) are undertaking a Road Asset Management System (RAMS) project. The RAMS project includes traffic count information on non-National and Provincial controlled roads. This project is due for completion in 2016. However specific information may be available earlier.
- The Msunduzi Municipality have recently (April 2013) advertised for tenderers to update the Msunduzi Roads Asset Management Plan (RAMP). The outcome will be a Pavement Management System (PMS) based on the conditional assessment analysis. The contract period for this project is six months.
- Accident statistics on the municipal road network in the CBD are limited to collision accident forms held at local police stations. During examination of data, several major deficiencies were identified that render as unsatisfactory the use of the information for analysis purposes. **This is a serious deficiency which should be addressed.**
- There is no consolidated plan showing the combined traffic impact of development proposals in the CBD area. **This is a serious deficiency which should be addressed.**
- There is no existing road condition assessment on the municipal or provincial road network in the CBD area. The KwaZulu-Natal Department of Transport is in the process of setting up a Pavement Management System encompassing all roads in the Province. The information from this report should be available between August and December 2013.

- A project prioritisation system is being developed to facilitate the ranking of all projects within the KZN:DoT based on technical criteria. The system will commence with the identification and prioritisation of road projects. Preliminary information should be available towards the end of 2013.
- The future Public Transport system for the CBD area has not as yet been formalized. The proposals emanating from the IRPTN project will provide the primary structure from which more local systems can interact. Initial interaction with IRPTN planners and CBD LAP planners has taken place and technical notes and preliminary layouts should be made available in July 2013..
- The future movement of freight on both road and rail in the province is at present being assessed by affected authorities. Preliminary information should be available towards the end of 2013.
- The future structure and possibly even alignment of the N3 in the vicinity of Pietermaritzburg is uncertain. SANRAL are at present investigating various scenarios to accommodate future predicted traffic on the Durban – Gauteng corridor.

3 STATUS QUO

3.1 MODAL SPLIT

The 2001 Census showed that the daily modal split in Msunduzi Municipality was 48% for non-motorised transport (walk and cycle), 27% by public transport (bus, mini-bus taxi and train) and 25% by private vehicle (car and motorcycle). Non-motorised transport is the dominant mode in most wards in the municipality. Public transport trips are the dominant form of motorized transport in the western wards of the municipality, which also have higher proportions of unemployment and low income households. Private vehicle trips are more dominant in the northern and eastern wards and wards in the immediate vicinity of CBD.

Cordon counts by the uMgungundlovu District Municipality (UDM) in 2007 indicate that the percent of public transport person trips by minibus taxi had increased from 85% in 2005 to 88% in 2007, with trips by bus reducing from 15% to 12%.

Preliminary information from the Integrated Rapid Public Transport Network project identified 460,000 public transport passenger trips per day equating to 137,000,000 public passenger trips per annum in Msunduzi.

There are no rail services that form part of the daily commuter public transport system.

The high dependency on public transport and the high level of pedestrian activity places a focus on the need for high standard public transport services throughout the Municipality with attention to non-motorised transport (NMT) integrated with the public transport system.

3.2 PUBLIC TRANSPORT SURVEYS

Various forms of data for public transport services and infrastructure planning have been collected over a number of years for the Msunduzi municipal area. Apart from information collected by the Municipality, data has also been collected by the UDM and the KZN Department of Transport for use in various studies. The following sections summarize information and data related to the existing public transport system and operations, although not all of the background data is available in useful formats.

The most comprehensive survey to date is the 2002 CPTR which covered ranks in all areas of the Municipality. Since then the following surveys have been carried out:

- In 2004, a comprehensive supply and demand survey at ranks in the central area.
- In 2005, surveys related to public transport planning in the Edendale-Northdale Corridor including:
 - Passenger origin-destination surveys
 - Passenger trip purpose surveys
 - Survey of passenger transfers between modes
 - Counts of total passengers surveyed at each public transport facility

In 2007, the locations of all bus and taxi routes were updated as part of the District Municipality's "Review of the Current Public Transport Plan - 2008".

3.3 PUBLIC TRANSPORT SYSTEM

Msunduzi Municipality (KZ 225) covers an area of some 650km² and comprises four areas identified in the 2002 CPTR as shown in Annexure C, these being:

- KPC Pietermaritzburg Central Area
- KPE Greater Edendale
- KPV Vulindlela
- KPR Remainder of KZ225

The current scale of public transport operations in the Msunduzi Municipal area is as follows:

- 30 minibus taxi associations operating 146 routes (292 one way routes)
- 3 subsidized bus operators operating 85 peak buses (12 spares)
- An unknown number of smaller unsubsidized bus operators

- Rail service is limited to freight within the Msunduzi municipal area with the exception of the mainline passenger service between eThekweni and Gauteng
- In addition there are the two metered taxi associations operating from six ranks; three of these within the CBD.
- 460,000 public transport passenger trips per day.
- 137,000,000 public passenger trips per annum.

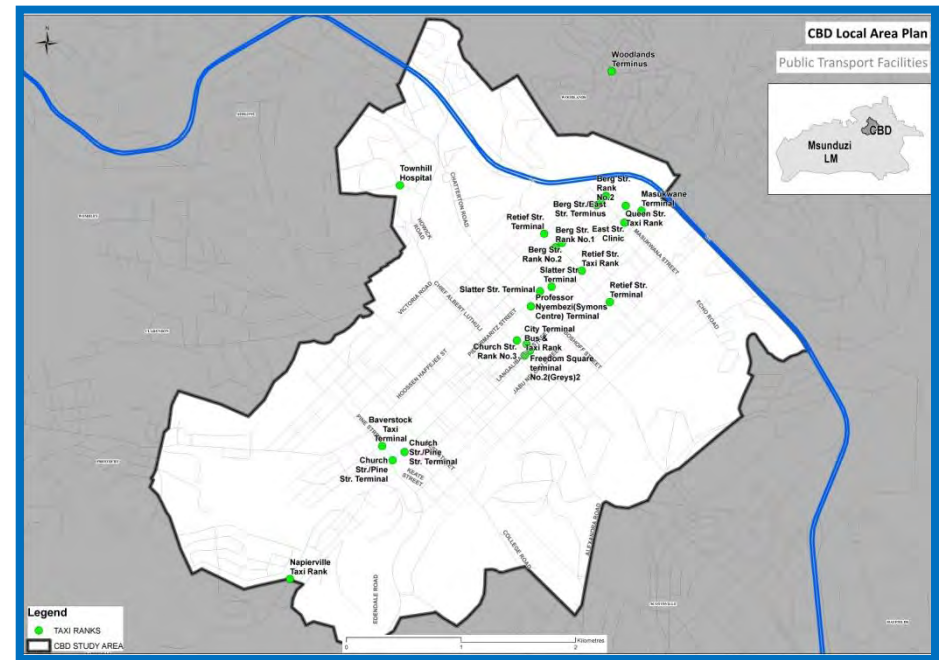
The diagram below indicates (by line thickness) the volumes of passengers in the morning peak period moving on the major routes on the road network.



3.4 PUBLIC TRANSPORT INFRASTRUCTURE

In the 2002 CPTR, inventories were carried out at 280 ranks and terminals and in 2004 an update was carried out at the Pietermaritzburg Central Area facilities.

The Pietermaritzburg Central Area has 31 on-street and 14 off-street rank/terminal/holding areas. These are shown on the map below, which is an extract from Annexure C.



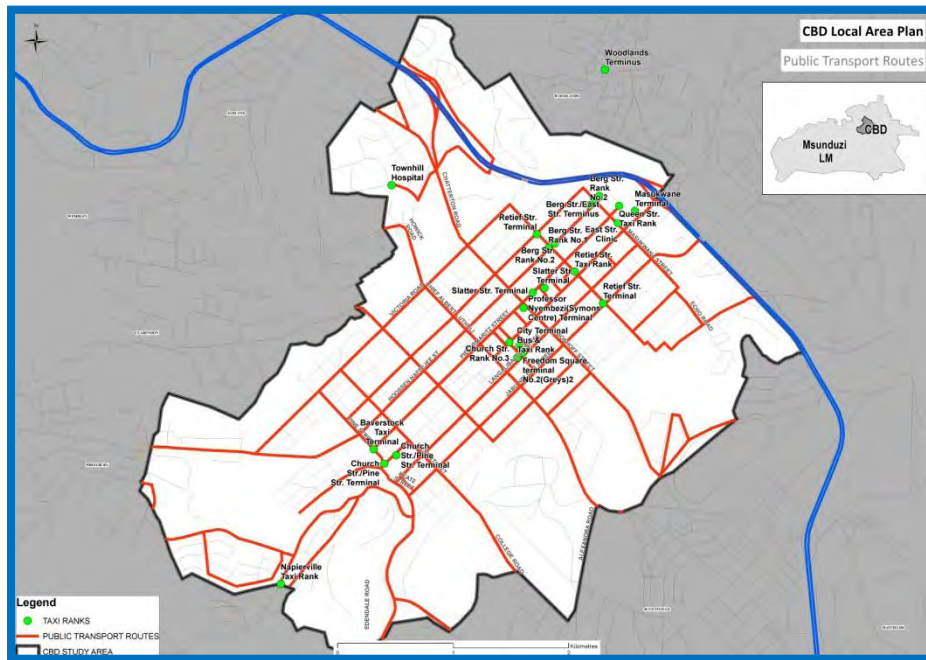
All ranks and stops with the exception of one rank (Old Market Street – Adjacent to Library) within the Central Area are considered to be formal.

The type of paving and the condition of the facilities at each of the 39 ranks and terminals were surveyed in the Central Area, in 2004. Four ranks were repositioned/ consolidated with other ranks in the period 2002 to 2004.

In addition to the above, there are two luxury coach stops and three metered taxi ranks located in the Central Area.

3.5 ROAD BASED PUBLIC TRANSPORT OPERATIONS

The map below shows the 2002 route system operated by bus and taxi services in the central area along with the location of the ranks and terminals they operate from. Whilst some route changes have occurred since 2002 this is insignificant in terms of the extensive coverage of the Municipal area. Of note is the fact that a high proportion of the routes either terminate in, or are routed through the Central Area.



- Duzi Bus Service operating 2 routes
- Sizanani Mazulu Transport operating 58 routes, and
- Thembekile Transport operating 11 routes.

The annual subsidy per bus for each of the three operations over the period 2009/10 was R384 000, R516 000 and R400 000 respectively. Whilst two of the operators were experiencing a significant drop in patronage over the five year period, (2005-2010) and reducing fleet over the last two years, subsidy per bus was increasing at approximately 12% per annum on the Duzi service and 9% per annum on the Sizanana service over a five year period.

This is a concern as the cost of subsidising this relatively low level of service is increasing in the face of decreasing patronage and increasing operating costs.

3.6 RAIL OPERATIONS

Pietermaritzburg is a node in the KZN rail network, located along the Durban – Gauteng main rail corridor. This rail corridor has double track, with electric traction, and is generally well maintained. The main line is upgraded over the last century and has some tunnels and viaduct bridges and relatively wide radii and fair gradients (although the track towards Howick is quite steep). Despite the decent infrastructure, train speeds are relatively slow with maximum speeds of between 60 to 80km/h. The ‘old’ main line infrastructure (in use before the upgrade) is partly lifted or overgrown and not in use anymore (except for a touristy steam train depot in Hilton).

From Pietermaritzburg there are several branch lines, with single track, diesel operation, tighter radii and steeper gradients (the track out of the valley towards Greytown is one of the steepest in the country) and is fair/poor maintained. Train speeds are slow with maximum speeds between 30 to 50km/h. Branch lines are running towards: Wartburg – Greytown (northeast), Richmond (south), and Edendale – Donnybrook – Franklin (southwest).

There are two rail lines that traverse the CBD area (refer Annexure A).

3.6.1 MAIN LINE FROM DURBAN TO JOHANNESBURG.

This line carries significant quantities of freight as well as a scheduled passenger service. The main passenger rail station is at the southwest side of town, at the end of Church Street. There are other stations on the main and branch lines (like on Victoria Rd), but these are not in use anymore. Pietermaritzburg has several freight terminal / depots where goods are un-/loaded. Only the Durban – Gauteng line has passenger transport, provided by PRASA Shosholosa Meyl. At present there is one overnight train a day in each direction (or reduced to 3 to 4 services a week), calling

3.5.1 MINI TAXI OPERATIONS

Plans for each of the 146 bi-directional taxi routes are documented in the UDM 2008 “Review of the Current Public Transport Plan”. The 2008 report is in effect a combination of segments of a CPTR and a Public Transport Plan. The focus of the report is primarily on an update of the public transport routes identified in the 2002 CPTR.

The number of routes has grown from the 124 routes recorded in the 2005 PTP, based on the 2002 CPTR, representing a growth of 19% over a 5 year period.

The relatively high number of shorter distance routes highlights the importance of the Central Area as a destination. However, the large number of passengers boarding in the Central Area (5 000 in the peak hour), taking into consideration the limited residential development in this area, suggests there is a significant number of passengers transferring from one route to another in the CBD.

3.5.2 BUS OPERATIONS

There are three subsidized bus operators, operating from the Msunduzi municipal area.

at Pietermaritzburg. It provides Pietermaritzburg with a service to Gauteng. It also provides a service to Durban, but this part of the service is not very reliable and at inconvenient times. Freight transport is operated by Transnet Freight Rail. The main corridor Durban – Gauteng has about 25trains/day per direction, mostly transporting general freight: containers, oil products, cars, agriculture products, and some bulk minerals, a total of some 20million tons per year.

3.6.2 FEEDER/HAULAGE LINE.

Feeder/haulage line parallel to the Willowton area that traditionally serviced local industry. The branch lines running towards Donnybrook, Richmond and Wartburg mostly transporting agriculture products: timber, sugar cane, maize/wheat, etc. The Pietermaritzburg branch lines cluster transports less than 2 million tons of goods per year.

Over the last 30 years or so, the question of the viability of rail as a mode for passenger transport and also freight transport within Msunduzi has been raised a number of times. In each case an investigation was undertaken, either specifically relating to passenger rail, or as part of a wider study for public transport within the area.

The investigations came to the conclusion that passenger rail is not a viable option for Msunduzi, based on the following factors:

- The relatively low population densities and employment concentrations would generate very low passenger volumes. To make viable trips, therefore, the frequencies would be very low, making it inconvenient for passengers.
- There would be a need for mode transfers to ensure good ridership, with a feeder system to the rail stations. Passengers are resistant to transfers over short distances.
- The relatively short distances from residential areas to the various employment areas essentially nullify the greater journey speeds of rail.
- The complete feeder system would need to be constructed, whereas road based public transport can be provided incrementally.
- The rail system would operate well below its capacity.
- The cost to provide an attractive service would be very high in both capital and operating costs, and affordable fare levels would come nowhere near meeting these costs.
- Road based public transport systems would continue to provide more than adequate capacity for the needs of passengers within Msunduzi.

However recent initiatives have suggested that an express commuter passenger train service could be introduced between Pietermaritzburg and Durban.

The future of rail freight services is being addressed by various studies at both national and provincial levels.

3.7 PUBLIC TRANSPORT SERVICE SUPPLY AND DEMAND

3.7.1 MINIBUS TAXI SERVICES

The Central Area, which is predominantly an employment zone, has significantly higher demand in the pm peak as compared with the am peak.

• AM peak		
○ Vehicle Trips		738
○ Passengers		
▪ Alighting		2440
▪ Boarding		4865
▪ Departing		7326
○ Load Factor		0.66
• PM peak		
○ Vehicle Trips		1475
○ Passengers		
▪ Alighting		1251
▪ Boarding		14703
▪ Departing		17135
○ Load Factor		0.77

The above numbers shows 2004 am and pm counts for taxi services taken at 24 ranks in the Central Area. The overall average load factor for peak hour services within the peak period is 0,66 in the am and 0,77 in the pm, much lower than load factors reflected in the 2002 survey which indicated average load factors in excess of 1,0.

The am peak figures are understandably much lower than the pm service in the Central Area which is primarily an am destination employment area. It is also a transfer point for many trips en-route to destinations outside the Central Area.

3.7.2 BUS SERVICES

The 2002 CPTA bus services supply and demand surveys covered trips departing from the residential areas of Edendale and Vulindlela from early morning until 12h00 and trips from the Central Area from 12h00 onwards.

Based on survey results, buses in both the am and pm on average, operated at low load factors carrying approximately 55% of a seated load.

Annual patronage figures for the three subsidized bus services over the past five years indicate that two of the three operators have recorded a decline in passengers. Duzi Bus Service, the smallest of the three operators has experienced a 35% decrease and Sizanani, the largest, an 18% decrease. Notably, Thembikele, a similar size to Duzi Bus Service has shown a growth of 15% resulting in an overall reduction for the three services combined of 17%.

3.8 NON-MOTORISED TRANSPORT

The Non-Motorised Transport (NMT) Planning report for Msunduzi Municipality, completed in 2009, highlighted deficiencies, and opportunities (to address these deficiencies) in terms of a prioritized schedule of interventions. The report noted that in general the extent and standard of existing facilities was poor. At the same time it is recognized that there are opportunities to address these deficiencies on a prioritized basis. Clearly there is a need to both recognize and incorporate NMT facilities as a system which can and should be integrated into the public transport system overall. These are increasingly important within the context of pending planning and implementation of an integrated rapid public transport network (IRPTN) for the Municipality.

The report considers possible locations for pedestrian and cycling facilities to be implemented, to overcome some of the significant problem locations. Further, it reviews the outcome of an investigation for upgrade of facilities along a section of Edendale Road, one of the busiest movement corridors in the City and one with high potential to benefit from such facilities.

The Non-Motorised Transport Plan for Msunduzi Municipality (2009) identifies the following locations where pedestrian problems require some form of intervention which would improve NMT:

- On several busy roads in the city centre including Victoria Road, Church Street, Boshoff Street, Pietermaritz Street, Hoosen Haffejee Street, Langalibalele Street and Jabu Ndlovu Street.
- Around primary schools (in all areas)
- At the Greytown Road Interchange
- On the route from the CBD to the Liberty Midlands Mall.

The types of pedestrian problems that need to be addressed include:

- Lack of sidewalks in residential areas
- Intersections where informal trading takes place
- Lack of sidewalk maintenance
- Speed of vehicles approaching pedestrian crossings
- Double parking on pedestrian crossing
- Trading activities blocking sidewalks

The Report identifies locations that are perceived as problematic for cyclists are located along the following roads:

- Victoria Road
- Alexandra Road
- All major roads where the speed and volume of motorised traffic is high
- All roads in industrial areas because of space sharing with trucks.

The report also summarizes interviews with both commuting and recreational cyclists. The interviews identified that there is a general lack of consideration by motorists towards cyclists. This impacts on safety as well as the level of NMT use in Msunduzi.

The Report also evaluated the problems pedestrians and cyclists encounter and established that there are limited facilities for NMT users. In most instances existing facilities are discontinuous and do not form an integrated system. Inadequate maintenance is also an issue.

3.9 METERED TAXIS

The minibus taxi service has mostly been the focus of the taxi industry, since 1994. However, the metered taxi industry also plays a significant role in the public transport industry especially in the context of the country's vision of modal integration and integrated, seamless public passenger transport services. The metered taxi industry plays a crucial role mostly in the context of the tourism sector which has experienced sustained economic growth since 1994.

Currently the metered taxi industry within the Msunduzi municipal boundaries is neither formalized, regulated nor properly licensed. Therefore, it was not possible to accurately quantify the extent of the industry. Indications are that there are numerous illegal metered taxis operating in the area which do not comply with legislation in terms of service quality, standards and customer (passenger) care, consequently passenger safety and security is comprised.

3.10 LEVELS OF TRAFFIC CONGESTION

Various sources of information and analyses have been used to estimate the current and future traffic demand on the Msunduzi road network.

In the early 1990's, two traffic models were developed for Msunduzi Municipality:

- Msunduzi Regional Model and
- The Pietermaritzburg CBD model

The models were used to assess infrastructure upgrades to the local road network and the traffic impacts of new development proposals. A review and update of these models in 2006 included:

- The consolidation of the regional and CBD model
- Revised metropolitan boundaries and
- Updated travel data through roadside interviews, journey time surveys and traffic counts

The data collected indicated that for the AM peak hour:

- The overall morning peak hour for strategic routes entering the CBD is 07:00 to 08:00
- Peak hour represents 60% of the peak period (06:30 – 09:00) in an inbound direction
- In the outbound direction the peak hour represents 40% of the peak period
- For both directions the peak hour represents 53% of the peak period

The model included:

- All car trips
- All light and heavy goods vehicle trips
- Road based public transport including bus and minibus taxi

A comparative assessment was carried out between 2004 Traffic Cordon counts and the Msunduzi Traffic Model. The 2004 vehicle volumes along the major arterials into and out of the Pietermaritzburg CBD as simulated by the Msunduzi Traffic Model and as surveyed in cordon surveys. The modelled traffic volumes compare favourably with the cordon count volumes with a +1.1% variance in CBD inbound traffic and +1.8% in CBD outbound traffic. The model represents the best available data to estimate the current and future level of congestion on the road network.

The average of these 2004 assessments for the am peak period showed 16 700 vehicles in and 9 100 out along the major arterials of the Pietermaritzburg CBD on the major arterial cordon.

The Msunduzi Traffic model was used to identify PCU volume to capacity (V/C) ratios for road links. These V/C ratios indicate levels of service (LOS) that would be experienced by road users.

Numerous arterials leading to the Pietermaritzburg CBD exhibit volume/capacity (V/C) ratios greater than 0.85, indicating poor levels of service and the need for intervention. The assessment identified the major arterials and the growth progression of the V/C up to 2026. Based on forecast demand all major arterials leading to the Pietermaritzburg CBD are expected to exhibit signs of distress either by 2011, 2016 or 2026.

3.11 PARKING

Parking in the city centre is problematic. Over the last few years, there have no charges for general on-street parking and this has led to a situation where vehicles are being left all day in prime parking areas. This has resulted in many instances of double parking and illegal stopping at many locations throughout the CBD area. Public parking arcades that are located in the CBD have spare capacity.

There is a perception that there is a lack of enforcement of traffic laws on violators of parking regulations. This extends to minibus taxis that also double park and cause congestion. This is particularly evident at the following locations:

- Pietermaritz Street between Boshoff and Retief Streets
- Berg Street between Retief and James Streets
- Berg Street between Masukwana and Queen Streets
- Langalibalele Street between Chief Albert Luthuli and Boshoff Streets
- Church Street between Chief Albert Luthuli and Boshoff Streets

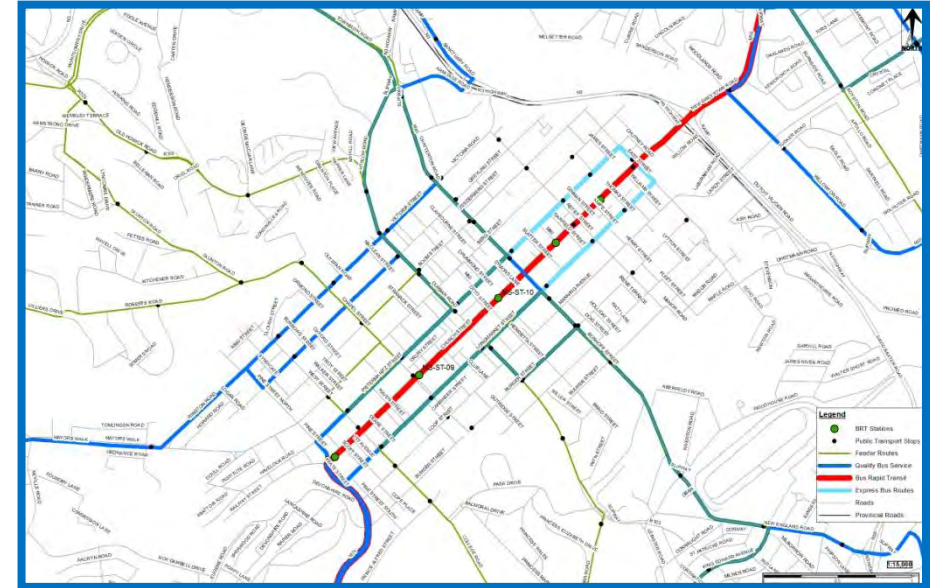
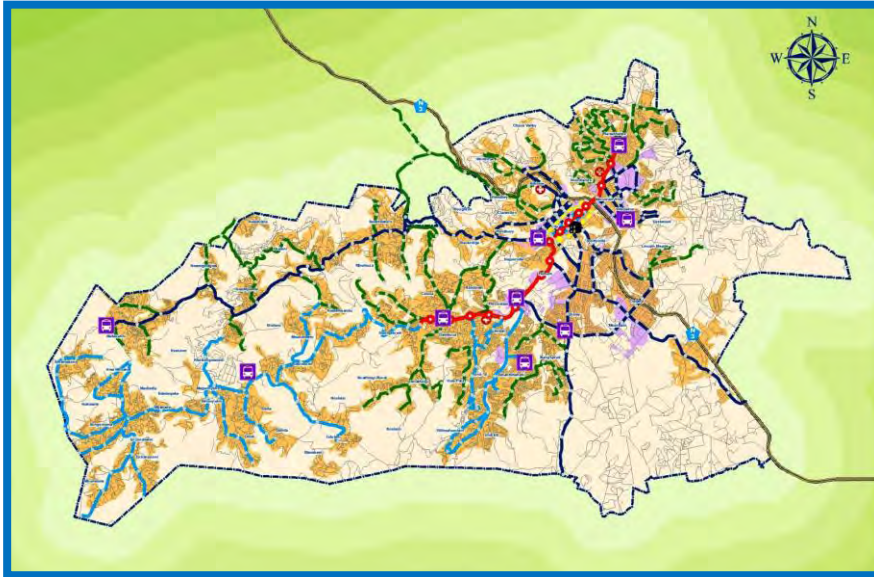
3.12 INTEGRATED RAPID PUBLIC TRANSPORT NETWORK

This is probably the most significant transport initiative that has been undertaken recently.

The following considerations were considered key during the preliminary planning stage:

- City-wide, integrated, robust public transport solution
- Linking communities to opportunity – addressing past inequalities
- Currently at max capacity – need new PT management
- Mobility and accessibility are key for the network
- Mutually supportive land use / public transport

The preliminary proposals have established a network as shown below for the Msunduzi Municipal area.



This network incorporates:

- 18 km Right of Way
- Quality Bus Service 132km
- Express Service 131 km
- Feeder 223 km
- 14 En Route Stations
- 2 Terminal Stations
- 3 Turn Around Areas
- 160 Feeder and QBS Stops
- 1 Control Centre
- 1 CBD Holding Area
- 8 Depots

The proposed system:

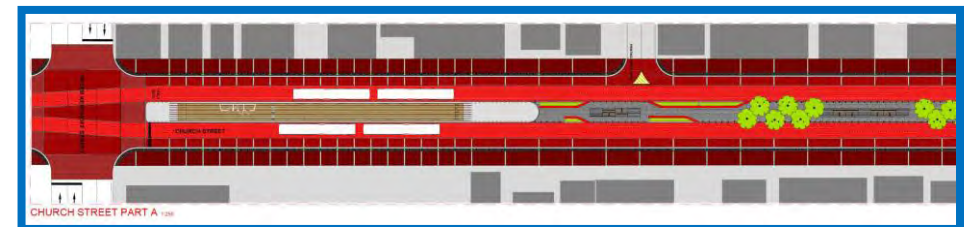
- Provides public transport & pedestrian priority along Church Street, with mobility provided by the parallel routes.
- Requires the relocation of private vehicles & parking and a need to manage the operation of deliveries.
- Includes the provision for the QBS operation and the CBD PT distribution system along the parallel routes – Pietermaritz and Langalibalele Streets.
- Creates cross linkages and an integrated system of accessibility, mobility and, importantly, urban opportunity within and beyond the core.

The BRT takes the form of an exclusive Right of Way for buses and does not accommodate private transport vehicles. A concept plan is shown below.

This represents an expenditure in the order of some R3.2 Billion.

The Bus Rapid Transport element (shown as red on drawing below) of the IRPTN traverses the CBD area from the Edendale Road in the southwest to Chota Motola Road in the northeast.

This is supported by a network of Express Bus Routes (EBR) and Quality Bus Service (QBS).



4 MAJOR ISSUES

In general, the CBD LAP is only adequately served by the existing road network to accommodate the present land-usages.

The National Route is of critical importance to the area and any change in operations on this transport corridor would have a fundamental influence on any forward planning.

There is an established rail network in the area under review and this could, in the future, prove a valuable asset. However, both older and more recent studies have concluded that a local commuter rail network in the area would be impractical. Therefore it has been concluded that the feasibility of a local commuter rail network being implemented in the present planning horizons is negligible, and has been discarded from inclusion in this exercise.

However, initial discussions/investigations have identified the following major issues that were considered as points of major importance to this planning process and therefore aspects that should be addressed in more detail:

- **National Route.** Uncertainty regarding an alignment of any future 'By-pass' and how this would influence planning in the area.
- **Integrated Rapid Public Transport Network.** This is probably the most significant transport initiative that has been undertaken recently. Available information suggests that a Bus Rapid Transit (BRT) route will be constructed between Georgetown (in Edendale) to Northdale and will traverse the CBD area along Church Street. In addition an Integrated Rapid Public Transport Network with associated depots (including workshops), interchanges, holding areas and feeder services will operate throughout the Msunduzi area. The implications of these operations will extend into other spheres of municipal infrastructure and planning.
- **Major Intersection Capacity.** Several major intersections are currently operating at low Levels of Service especially at peak periods. This manifests itself in congestion and sometimes even gridlock in both morning and evening peak periods.
- **Traffic Signal Co-ordination.** Timings between signal controlled junctions appear less than optimum during certain hours of the day. Again this manifests itself in congestion and sometimes even gridlock in both morning and evening peak periods.
- **Public Transport Network.** Existing public transport operations are sometimes ill-defined and unscheduled.
- **Public Transport Facilities.** Many of the existing public transport facilities are outdated. A new network of public transport facilities is necessary.
- **New Developments (Industrial / Commercial / Residential).** Several significant developments that will have a significant impact on the CBD network are in various stages of approvals. These include the Brookside Mall and the Waterfront developments.
- **Non-Motorised Transport.** Formalised pedestrian/cycle facilities are minimal/non-existent in certain areas. Pedestrians and cyclists often share narrow and sometimes poorly maintained roadways with motor vehicles.
- **Condition of Existing Roads.** Several of the roads on the existing network are showing signs of various degrees of distress and many require repair/upgrading/reconstruction.
- **Road Safety.** Any of the above, or combination of, identified deficiencies may contribute to potentially create dangerous situations.
- **Parking.** Parking for private vehicles is often quoted as problematic in the Central Area due to various reasons, including illegal parking and insufficient parking for usages.