

Passenger rail in Cape Town: Exploring institutional forms for a more effective rail service



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Abstract

In South Africa, passenger rail services are currently in a painfully poor state. This disproportionately affects the poor who have to rely on more expensive alternative transport options, and as a result of unjust apartheid planning of the past, typically live the furthest away from economic opportunity. In the City of Cape Town, many of the poorest households spend up to 40% of their income alone and travel relatively long distances within the municipality. This is in part due to the historic development of the city, which developed around rail corridors, a development pattern which is still evident and pursued in the city's contemporary spatial planning. The concern about this situation is that the City of Cape Town has very little power over improving the rail system as it is owned by the national passenger rail company, PRASA, who have severely mismanaged South African passenger rail. Furthermore, the failings of PRASA have impeded the City of Cape Town's ability to integrate its land use planning with this vital transport mode and as a result are unable to leverage passenger rail to aid in its transit-oriented development strategies, this is further explained in chapter 6.

There is therefore a need to understand what problems need to be addressed, how best these problems should be addressed (by which sphere of government), and how improving rail services in Cape Town can be achieved. Therefore, the aim of this study is to understand the reasons for rail decline and the challenges to its operation in Cape Town and how best these challenges can be overcome. This aim was achieved by using Cape Town as a case study, while collecting data through expert interviews, reports, press articles and a transport policy review.

The results of this study show that politics have been a significant challenge. The results highlight that the municipal government is best situated to address transport issues and thus rail devolution would be the most effective option for rail improvement. The results do however highlight that financing of such an expensive piece of infrastructure will be a major challenge which will require careful planning and consideration. Going forward this research can inform national rail policy and the City of Cape Town's municipal transport and land use policy as well as transport and spatial development plans.

Acronyms & Abbreviations

CoCT	- City of Cape Town
PRASA	- Passenger Rail Agency of South Africa
MBT	- Minibus Taxi
DoT	- Department of Transport
PDot	- Provincial Department of Transport
GABS	- Golden Arrow Bus Service
BRT	- Bus Rapid Transport
UN	- United Nations
JNR	- Japanese National Railways
JR	- Japanese Rail
CBD	- Central Business District
RDP	- Reconstruction and Development Programme
GAA	- Group Areas Act
TDA	- Transport and Urban Development Authority
IPTN	- Integrated Public Transport Network
NLTA	- National Land Transportation Act
NLTSF	- National Land Transport Strategic Framework
NDP	- National Development Plan
MSDF	- Municipal Spatial Development Framework
SDF	- Spatial Development Framework
PLTF	- Provincial Land Transportation Framework
CITP	- Comprehensive Integrated Transport Plan
TOD	- Transit Oriented Development
MoA	- Memorandum of Understanding
SOE	- State Owned Enterprise
LBF	- Land-based Financing
LVC	- Land-value Capture

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Chapter 1 – Introduction

1.1 Problem under investigation

Cape Town, like all major cities in South Africa, has been shaped by its history of racial ideology and planning that emphasised separate human, economic and spatial development (Turok, 2001) (Pieterse, 2009). This has lingering implications for the current spatial form and social-economic landscape we see today as South African cities have remained profoundly divided, segregated and unequal despite decades of efforts to undo our divided past (Turok, 2001) (Pieterse, 2009). Greater Cape Town is a bluntly polarised city with affluent suburbs and prosperous economic centres offering the rich opportunities of all kinds, contrasted with overcrowded, poverty-stricken settlements on the periphery (Turok, 2001). This is in part a reflection of the geographics of the city, offering stunning mountain and coastal settings juxtaposed with the wind-swept, flood-prone, barren Cape Flats (Turok, 2001). Massive inequalities caused by past apartheid planning has manifested itself today as economic based segregation which sorts people across this space according to their ability to buy into different quality neighbourhoods through the housing market (Turok, 2001). Many of the poorest who live in the Cape Flats spend an unreasonable proportion of their income on travelling to work perpetuating the cycle of inequality present in Cape Town.

While Cape Town has a well-developed rail network, the functioning of it presently is plagued by regular and unpredictable delays (31% of trips in 2019), cancellations (18% of trips in 2019), and closure of lines due to theft, vandalism and institutional failure which has severely reduced its capacity (Vanderschuren et al, 2021). The poor rail performance is a result of years' worth of neglect and mismanagement by PRASA (Passenger Rail Agency of South Africa). This failure of rail perpetuates the geographical and social exclusion of the poorest communities at the city's periphery. Although rail has historically carried the highest volume of transit trips in Cape Town, the market share has been sharply decreasing in favour of more expensive Minibus Taxis (MBT) due to the fact that there are simply no other choices that offer the accessibility of MBT's. Rail transit has traditionally been the most affordable form of public transport in Cape Town, and it is therefore important that this service works reliably for many residents. Furthermore, Cape Town's spatial development policy places rail at the centre of its mobility system so it is vital that a functioning rail system exists if the city's spatial development strategies are to be successful.

The current level of service provision of public transport in Cape Town is inadequate and ineffective in meeting user needs (Maunganidze & Del Mistro, 2012). It has long been an issue in Cape Town that state owned public transport (or the lack thereof) is a major issue for the majority of households in the city. As around 65% of households are forced to rely on more expensive minibus taxis (MBT) for their daily commuting needs (Bähre, 2014). This issue disproportionately affects the poor who tend to live the furthest from work and must travel from the metro Southeast and other far-flung regions of the city. Rail, however, has a strong cost benefit to MBT for the user as over the course of a year for the same distance trip commuters could spend almost half as much on travel (Clark & Crous, 2000).

At the crux of the issue is the fact that the City of Cape Town has almost no power to improve the rail situation as it is fully owned and operated by PRASA. This is not just a problem for transport in Cape Town, it also has deep reaching implications for the city's spatial development. This is because the City of Cape Town's spatial development framework prioritises transit-oriented development (TOD) which requires the cities rail network to be working and serving as the backbone of the city's transit system for TOD to be effective.

There is a clear need to investigate how rail transport has fallen so far behind in the role it is supposed to play in Cape Town's mobility, and furthermore, there is a need to understand the challenges that need to be overcome and how best rail could be governed to ensure a reliable, safe and effective rail system exists in the city.

1.2 Aim of the study

This research aimed to understand the challenges passenger rail in Cape Town has faced which have created an environment of insufficient rail transport for the needs of the city, furthermore it aims to understand the spatial and institutional factors which will need to be addressed in order to overcome this, by questioning which institutional structures are best suited to improving services.

1.3 Research questions

1.3.1 Main research question

What are the spatial and institutional problems that have led to the inadequacy of Cape Town's public rail system and which institutional structure may be best suited to addressing the current rail failure and successfully implementing a system that works?

1.3.2 Subsidiary Questions

- What are the competencies of each sphere of government, in relation to public transportation and how could that contribute to improved rail delivery?
- How have political dynamics had an effect on transport planning and the running of rail in Cape Town, and what are the implications in relation to the future of rail?
- What role does rail play in the meeting of Cape Town's spatial development plans and visions?
- What lessons can be learnt from other modes of transport, such as the MyCiti BRT service?
- What has been the role played by PRASA in relation to rail in Cape Town?
- Is devolution of rail to local government, in the case of the City of Cape Town, viable?

1.4 Dissertation structure

Chapter 1 provides a short overview of the problem under study as well as the aim and research questions.

Chapter 2 serves as a literature review which touches on topics that include urban mobility, land use, public transit financing and the governance of rail. Literature is drawn upon from international and South African authors.

Chapter 3 aims to narrow the focus from the international perspective of the literature review down to the South African and Case study context, which provides the reader with a greater understanding of the problem and mobility in Cape Town.

Chapter 4 outlines the methodology of this research. This chapter outlines the research methods, as well as the research techniques and tools used in the study. Furthermore, this chapter touches on ethical considerations and describes the study limitations.

Chapter 5 serves as a policy and legislation review which will provide a critical brief analysis of current legislation and policy relevant for rail and transport across all three spheres of government. This chapter contributes to the dissertation findings as it highlights gaps and problems with policy.

Chapter 6 serves as the main findings chapter of the dissertation and provides the results obtained from the field work which included first hand interviews, interview recordings by news and radio agencies, news reports and a range of documentation. This chapter also turns towards a discussion section in which the findings are more closely analysed and linked back to existing literature.

Chapter 7 provides recommendations based on the findings obtained throughout this research and lastly provides a conclusion and short summarised response to the subsidiary research questions as well as recommendations for further research.

Chapter 2 - Literature Review

Introduction

This chapter is a literature review which aims to unpack the contemporary thinking around the relationship between urban form and accessibility and mobility in cities, particularly within the global south. Importantly this chapter also aims to present an overview of rail governance and the institutional challenges cities tend to face in relation to governing mobility systems. It is essential to understand how mobility and urban form relate to one another to begin to understand how the rapid decline of rail services in Cape Town affect residents and commuters. Furthermore, understanding the relationship between urban form and mobility will provide a foundation for understanding how to address current challenges in Cape Town with regards to mobility. Providing an overview of institutional and management challenges to mobility systems will also provide context or themes to put the Cape Town case into when analysing issues the rail system faces, which should allow for better analysis and may highlight gaps in the literature when arranging the findings.

2.1 Understanding mobility and accessibility and the relationship to urban form

It is widely accepted that urban form and suburbanisation have a close correlation to mobility and accessibility in metropolitan areas. As such, *"Transport planning requires a realistic land-use policy where a symbiotic relationship with urban form embraces the aims of sustainable development."* (Donaldson, 2006). Sustainable development here as being defined not only as sustainable from an environmental point of view but also from a socioeconomic perspective.

The population in cities in the world's developing countries, especially in Africa, are expected to double over the next 25 years (Demographia, 2010). The growth in population will result in the spatial expansion of major urban areas (Del Mistro, 2017). Managing the sustainability of cities whilst planning for development is one of the biggest challenges we face in the modern city from a planning perspective due to the large influx of people due to rapid urbanisation over the past few decades (Campagni, 2002). Cities experiencing rapid urbanisation tend to experience the greatest transformation of the built environment in the peripheral areas, the areas that surround the city (Campagni, 2002). This transformation of the built environment, particularly in developing countries (Donaldson, 2006), usually manifests itself as spread out and 'diluted' over space in a development pattern known as sprawl (Campagni, 2002). Often sprawl in developing countries contains elements of informality which can be expressed as entire suburbs often called different names around the world, such as townships in South Africa, favelas in South America (most notably Brazil), slums in India, or ghettos in North America and Europe. Sprawl can be defined as low density development, which extends to the periphery of a metropolitan region and is segregated in mono-functional land uses that are usually dependent on the car (Campagni, 2002).

Low density sprawl could be somewhat be thought of as the enemy to mobility, accessibility, and public transport. Accessibility being broadly described as the ease of reaching services or destinations (Litman, 2012). Sprawl and the subsequent fragmentation and separation of land uses that are characteristic of sprawl, is incredibly inefficient (Donaldson, 2006). Low

densities associated with sprawl also make the provision of efficient public transport difficult as consumer thresholds can be too low to provide a frequent and effective service. From a public transport and mobility point of view, decentralisation and sprawling urban growth makes the capital costs of providing public utilities more expensive (Turock & Watson, 2001). This means; it makes the provision of efficient public transport difficult as consumer thresholds can be too low to provide a frequent and effective service; more roads and supporting infrastructure are needed to provide access to homes covering a greater expanse; longer rail lines and a greater number of stations and rolling stock; and greater maintenance and upkeep costs as examples (Turok & Watson, 2001). From an accessibility perspective, sprawling development means longer (and thus more expensive) commuters and due to the spread-out nature of settlement, homes are usually further away from transport interchanges which pushes for the use of private transport. Generally, this results in a more expensive, less convenient and less pleasant experience by the user when using public transport.

Transport & mobility also have deep implications for the wellbeing of vulnerable sections of urban society, more so than for the wealthy (Barter, 1999). Dressing the mobility needs of the socially and economically disadvantaged is a major challenge, the challenges relate to their dependence on non-motorised movement and their restricted access to motorised public and private transport (UN, 2013). There is abundant evidence that in general a lack of adequate mobility has a negative influence on social wellbeing (Dávila et al, 2013). However, it is not so clear that the opposite is true (Brand & Dávila, 2011). One of the primary objectives of urban transportation is to increase accessibility for persons living and working in the region (Del Mistro, 2017). Generally speaking, when mobility and accessibility improve, there is usually an increase in opportunity, however there must first be an adequate availability of economic, physical and intangible resources necessary to create opportunities (Dávila, et al., 2013). The point here is that you cannot have one without the other. While mobility alone can have far reaching positive impacts, simply improving mobility and accessibility on its own does not necessarily always result in an improvement of opportunity for disadvantaged areas (Brand & Dávila, 2011). This is no more important than for the most vulnerable and disadvantaged communities who are geographically marginalised or socially excluded on the periphery of cities.

In many developing countries it is not unusual for one-fifth of low-income households' income is spent on transport (In cape Town this is closer to 40%) in metropolitan areas with ineffective transport systems (Pacione, 2001). On the other hand, high-income proportions of the population travel more and travel faster, usually relying on cars and private transport whilst spending a far smaller proportion of income on travel (Dávila et al, 2013) (Donaldson, 2006). This geographical marginalisation combined with poor mobility can result in mobility-related exclusion, which is "the process by which people are prevented from participating in the economic, political and social aspects of life because of poor accessibility to opportunities, as result of insufficient mobility (Donaldson, 2006). When urban transport policies are integrated with transport, the result is an enhanced urban environment and development of transport corridors which in turn increase the level of patronage for urban public transport systems (Babalik-Sutcliffe, 2002). Therefore, it is important to have transport planning that works in an integrated way with land use planning to ensure better accessibility and mobility for disadvantaged areas whilst ensuring the availability of economic, physical and intangible resources to provide better or more opportunity. Supportive urban planning policies can be

highly effective in ensuring success of urban rail projects, concepts such as adapting urban development plans to urban rail plans, offering incentives for transit oriented development, joint development projects, locating public development at stations, urban renewal programs, pedestrianising portions of the city centre, can all make rail corridors more attractive and not only help achieve more desirable urban form but higher levels of patronage too (Babalik-Sutcliffe, 2002).

2.2 Common institutional issues in relation to mobility systems

2.2.1 Co-operation

Transportation or mobility is viewed as the movement of people or goods via one or more modes such as roads, railroads, waterways and airways and so on (Stough & Rietveld, 1997). The provision of transportation has, for the most part, been institutionalised within these different modes of transportation. Within these different institutions, the goal of transportation systems has focused primarily on maximising mobility and minimising related constraints such as congestion and safety (Stough & Rietveld, 1997). This has often been done in silos within the individual modes or categories of transport (Stough & Rietveld, 1997). Modern transport decision making however, is no longer as isolated as it once was, as the range of considerations when making transportation decisions and estimating transportation costs is much broader than it has been in the past (Stough & Rietveld, 1997). The range of cross-cutting issues that must be considered now include factors such as the environment, energy considerations and emissions, economic development, social equity and rapidly changing technology (Stough & Rietveld, 1997). As a result, there are a much wider range of stakeholders involved with decision making and taking decisions is more complicated which requires more coordination than in decades prior (Stough & Rietveld, 1997). The issue of how best to plan, manage, operate and regulate urban public transport is a major international challenge. Some stakeholders argue that transport enterprises must overtime be transformed into self-sustaining businesses (UN, 2013). Other stakeholders, however, argue that it is not desirable (or inevitable) that public transport should always be commercially operated, and look to a more welfare-oriented, public good approach instead (UN, 2013).

The increasing complication of decision making and how best to plan requires better integration of institutions to prevent inefficient distribution of infrastructure and transport services as a result of poor cooperation of institutions and stakeholders. However, In most of Africa, poor coordination between the numerous institutions in urban transport prevails (UN, 2013). This has led to problems in developing unified and integrated urban mobility policies. Generally, too many ministries are involved in urban transport issues, combined with widespread underfunding and absence of decentralisation in the transport sector (UN, 2013). Cooperation of different agencies in transport is often difficult due to fragmentation and thus a key finding by Babalik-Sutcliffe (2002) is that planners in transport need to find better ways of coordinating the efforts between the different role players involved with transport systems. The challenges of urban mobility systems can only be addressed if they are seen as political challenges which require political consultation, decision making and implementation, rather

than being seen as purely technical challenges requiring the 'right' technical solutions (UN, 2013).

2.2.2 A shift in thought and planning

Traditional road-based transport planning tends to follow a logic that goes as follows: if congestion occurs, and traffic flow exceeds the capacity of a road network, then extra lanes are added to deal with the congestion (Knoflachner, 2007). According to Knoflachner (2007), this is a result of transport education and all that it achieves is lower network densities, which in turn makes the mode of transport more attractive to the car user, perpetuating the issue of congestion. Planning whether intentional or not tends to favour car-based travel and in order to address the issue of mobility a change in institutional thinking is necessary if the problem is to be solved at the root. impactful, lasting solutions to traffic will not necessarily be found in treatment of flow of traffic, or in road pricing or in tariffs of public transport, rather there needs to be a shift in decision making from the institutional level of planning (Knoflachner, 2007).

There needs to be a change in the physical structure of mobility planning. As an example, in order to incentivise the use of public transport, it must be equally as convenient and accessible as the use of the road network. This could mean that car parks or places to store a car should be the same walking distance as it is to the public transport stop (Knoflachner, 2007). Transport has also not been organised into a coherent system, rather in many cases different transport modes have been optimised as individual parts which as a result has negatively affected the ability for cities to have integrated intermodal transport systems (Knoflachner, 2007).

Again, this feeds into the idea that land use and transport planning need to be done on an integrated basis. If congestion and transport challenges arise from inefficient sprawling cities, then rather than adding extra lanes to the motorways, and encouraging the use of cars, the best way to cut down on congestion would be to eliminate excess commuting and travel (Del Mistro, 2017). The best way to do this would be to look at the cause of the issue (Sprawl) and tackle it by addressing the cause. As an example, by concentrating people and activities at locations with relatively high accessibility in hierarchical centres (Del Mistro, 2017). One example of a development strategy that aims to achieve this is transit oriented development or TOD. TOD aims to maximise the amount of residential, business and leisure space within walking distance of public transport. Essentially, it promotes an integrated relationship between dense, compact urban form and public transport use.

2.2.3 Financing public transport

Pojani & Stead (2018) argue that there is often no shortage of transport plans for cities in countries in the Global South. However, the lack of funding often severely limits their implementation (Pojani & Stead, 2018). If funds were not an issue, it public transit would not be a major challenge in many cities globally.

Almost all public transit systems charge some sort of fare, this fare usually makes up a significant portion of the funding of many public transit modes and in some cases (particularly when owned privately) accounts for all the funding (Litman, 2014). Public transit, particularly when provisioned by the public sector, are however, often deemed a necessity and a public good and therefore are more often than not run at a deficit, this means that they require a government subsidy to keep them financially sustainable (Ubbels & Nijkamp, 2002). In many cases the subsidy covers the operational deficit that is not covered by fare charges (Ubbels & Nijkamp, 2002). In reality, there is not always enough money to go around, and often national subsidies are not sufficient, to this extent, many cities in sub-Saharan Africa experience a gap between the money that is available to finance urban infrastructure and the money that is needed to meet a growing backlog in services (Berrisford et al, 2018). More recently, decentralization reforms and rapid urbanization have been placing increasing pressure on local urban authorities within sub-Saharan Africa (Berrisford et al, 2018). In response, alternative forms of financing such as land-based finance (LBF) have been gaining popularity within urban development as a method of increasing local autonomy and financing local government infrastructure (Berrisford et al, 2018).

Land-based financing can consist of a number of different methods. Land-Value capture is often confused with LBF, the distinction is that land-value capture (LVC) is just one tool in the broader category of financing mechanisms that LBF refers to. Land-value capture is a common and rather topical method of land-based financing and employs a suite of instruments that allow the rising value of urban land to be leveraged by the state (Berrisford et al, 2018). This capacity is further enhanced if governments have control over urban infrastructure and over planning processes, thus land-value capture is often best done at a local level (Berrisford, 2018). Effectively, land-value capture aims to quantify, collect and distribute the value of urban land that has risen due to state investment, often achieved through a range of taxation methods (Berrisford, 2018). Other land-based financing tools include, the sale of development rights, rather than just simply granting a land use change (Berrisford, et al, 2018). This can be a way to leverage strategically important urban sites. Public land leasing and land sales are another way of raising funds as municipalities almost always own some urban land (Berrisford et al, 2018). Betterment levies/taxes are also used by the state on properties that receive a significant projected increase in the value of the property resulting from the investment in public infrastructure (Berrisford et al, 2018).

Importantly however, LBF is not something that can be leveraged without the right existing conditions. Most importantly there needs to be a sufficient and (ideally) growing demand for urban land and land development. Without this growing demand, and thus increasing land value, there is nothing for the state to capture (Berrisford et al, 2018). This highlights the importance of local authorities incentivising land development through both land use and transport development. Thus, another prerequisite is having an effective and supported local government that has a functional planning system that includes a city-wide plan for regulation of land and future development (Berrisford et al, 2019). OECD (2022) argues that densification and transit-oriented development are important spatial planning approaches to maximising LBF. "Increased Floor-Area-Ratios and Building to-Land-Ratios in and around station areas encourage Transit-Oriented-Development and improve the financial feasibility of development

projects by encouraging densification of station areas” (OECD, 2022). This again highlights the important of land-use in ensuring the effectiveness of transport systems.

2.3 Governance of Rail Systems

In much of the world, rail development has been an endeavour typically undertaken by national levels of government with monopolistic control (Stojadinovic & Boskovic, 2016). Under threat by a boom in air travel, pipeline construction, water and road transportation between the 1960’s and late 1970’s, rail saw a major decline (Mizutani & Nakamura, 1997) (Spychalski, 1997). Many of the alternatives to passenger rail saw advancement in technology and better market-oriented management which saw the popularity of rail decline rapidly (Spychalski, 1997). As a result, many countries have seen reform in their rail management and policy to achieve more competitive rail services. Many countries that we regard today as having efficient passenger rail services underwent what is known as decentralisation or devolving of decision making to local authorities, to name a few, these countries include the UK, Switzerland, Japan, Germany, France, Sweden, Netherlands, and Italy (Mizutani & Nakamura, 1997) (Pugh, 2009) (De Giulio, 2016) (Rosić & Bošković, Date unavailable).

Devolution of rail responsibility can be done to differing levels, most commonly rail operations and management, rolling stock, financing and rail infrastructure are separated and local authorities are handed control of just a few, or all of these aspects of governance, often operations being the primary role that gets decentralised as is the case in the UK where all local authorities responsible for rail have been given responsibility for operations at a minimum (United Kingdom DoT, 2012). However, one could argue that the process of only developing certain aspects of a system could complicate things and lead to less efficient operations. This could manifest itself in, for example, a situation where a local rail operator that uses a nationally owned rail network is undermined by the national infrastructure owner not keeping up with maintenance, thus directly affecting the operator’s ability to provide a service.

Over recent decades, African local authorities have experienced an increase in both the scope of their responsibilities (due to decentralization reforms) and the scale of the need (largely due to rapid urbanization) (Berrisford et al, 2018). Despite the tendency of national governments to resist relinquishing responsibilities (Berrisford et al, 2018). Generally, however, globally it is the norm for metropolitan rail systems to be a local function (Republic of South Africa, 2022). Almost all metropolitan rail systems are run by a local authority (Newzroom Africa, 2023). A shift away from national level governance to a decentralised system has a number of benefits. Local government is better equipped to be in touch with specific local needs (Republic of South Africa, 2022). From a local development perspective, more functions will be performed at the local level, thereby creating opportunities for locals with technical, managerial and leadership skills and bolstering the capacity to manage local affairs (Miller, 2002). It can bring government closer to the people, and as a result enable citizens to be better informed and to better understand what is being done by public entities (Miller, 2002). Decentralisation also helps government understand local needs and preferences as well as take advantage of local knowledge (Estache, 1995) (Miller, 2002).

Decentralisation also makes it easier for voters to hold the government accountable and it allows for the comparison of service quality between provinces which can improve competitiveness (Estache, 1995). Often the highest volume of rail transit occurs on a metropolitan commuter basis rather than at a national intercity level, therefore it is beneficial for local authorities to have power over operations due to their physical closeness to the on the ground realities in the area (United Kingdom DoT, 2012).

There are however reasons for governments to hold on to national centralised decision making. In countries with highly dense rail systems, organising scheduling in a way that is efficient can be difficult when decision making for each region is done on an individual basis and therefore be argued that it is more efficient when done centrally (Stojadinovic & Boskovic, 2016). Decentralisation can have the potential to widen the disparities between regions as the wealthiest regions are able to out develop regions with less capacity (Miller, 2012). In some cases, decentralisation, with weak accountability or inadequate policy, can result in misuse of authority (Miller, 2002). Decentralisation creates the potential for conflict between local and national interests. With each region having its own particular interests, differences between local and national interests are almost certain to emerge at some point (Miller, 2002). Lastly, decentralisation is a more complex form of governance, with more stakeholders and decision makers involved (Miller, 2002). There is also the question of what gets devolved. Do you transfer, operations, or does the local authority also get power over infrastructure, these are difficult decisions to make and determine, particularly when differing interests are thrown in the mix.

Privatisation to some degree is a common occurrence globally with respect to the management of rail (Okano, 1994). This can be done in different ways, with some countries such as the UK opting for privatisation of certain aspects of their network such as operations while infrastructure is held nationally while others such as Japan have privatised the entire industry. The Japanese National Railway was privatised on April 1st, 1987, and divided into six regional passenger railway companies and one nationwide freight railway company (Mizutani & Nakamura, 1997). Privatisation led to a revenue-cost ratio increase of 51% by 1997 which transitioned the rail industry from operating at a loss to operating with no cost deficits (Mizutani & Nakamura, 1997). Privatisation also led to a small fare decrease as well as better train frequency and density, all while improving safety, which was a major concern of privatisation opponents (Mizutani & Nakamura, 1997).

2.4 Case examples to illustrate.

2.4.1 Metro Cables in Medellin, Colombia - Mobility and urban form

Medellin's geographical context is not too dissimilar to that of Cape Town, and thus it makes for an interesting case study for comparison. Medellin is the second largest city of Colombia with a population of >3.5 million. Medellin has an elongated shape, located along the banks of the Medellin River (Heinrichs & Bernet, 2014). The city is geographically constricted by steep mountains on either side of the river and to the north which in turn has a huge effect in

limiting mobility for the neighbourhoods that have developed in these steep regions (Heinrichs & Bernet, 2014). Socio-economically, Medellín is characterised by segregation. Dense neighbourhoods with mostly low-income households are situated furthest away in the north and northeast where the geographical constraints are greatest, and the wealthier neighbourhoods located in the centre and towards the south of the city (Heinrichs & Bernet, 2014). There had been a history of land invasion and informality on difficult, steep terrain in the north, further worsening this spatial characteristic (Cordoba et al, 2014).



Figures 1 & 2: Examples of the geographical challenges and steepness in Medellín (Seth Pipkin, 2007) (Thomas Hobbs, 2012)

This difference in mobility for low-income households in the steeper regions on the fringe of the city and those who live closer to the centre, created mobility based social exclusion or geographic exclusion (Cordoba et al, 2014). The concept or definition of social exclusion can be described as being a situation where a person has reduced capacity to engage fully in society (Cordoba, et al, 2014). Medellín was famous for extreme violence by the “drug cartels”, once being named the deadliest city in the world, however, since the first aerial cableway introduced in 2004, the city has gone through a major transformation (Goodship, 2015). The city’s transformation is often symbolised by the aerial cableway transport system.

Luis Pérez, the mayor from 2001-2003, arguably played the largest role in bringing the project to reality (Davila, 2013). The Metropolitan Road Plan of 1985 hinted at the need for a link to the low-income hilly areas to the north of the city (Davila et al, 2013). Although the project faced criticism, with cable cars often being referred to as a “toy”, Luis Perez was one of the few mayoral candidates who followed through with committing himself to the project and improving mobility to the geographically isolated areas (Davila et al, 2013). Some of this criticism stemmed from the question of how socially driven the concept of the first cable-car was, as much of the incentive was at first to connect the residents of these socially excluded areas to the, at the time, underutilised metro system (Goodship, 2015). The first cableway was however, not inaugurated by Mayor Perez, but by his successor Sergio Fajardo, who quickly saw that the cable cars could be used for urban integration and to have a positive impact on the poorest regions of the city (Davila et al, 2013).

The first cable car line, the K line, although having a relatively low capacity was a superior option to building a new road, which would be highly disruptive, costly and would require 1500 vehicles per hour carrying two people to match the capacity of the metro cable (Cordoba et

al, 2014). After the installation of the K line, the success it saw in linking the hillside slums to Santo Domingo area, saw the start of the Integral Urban Project, (PUI, abbreviated from the Spanish name), which had the objective of increasing the quality of life of inhabitants in the Santo Domingo area (Goodship, 2015). The PUI was responsible for significant upgrades to educational, housing, cultural and public space infrastructure (Cordoba, 2015), all of which are visibly located nearby the cable-car, creating a direct connection for residents. This spatial planning policy helped enhance the impact of the first metro-cable in Medellin (Brand & Davila, 2011). While the initial incentive for the metro cables may not have been purely for positive social impact. Medellin is a great example of how mobility can benefit socially excluded areas. Furthermore, close integration of Medellin's land use and urban development with this new mode of transport, and a consistent vision for the city over the span of three different mayors helped secure its success and positive impact.

2.4.2 Japan Rail - Governance

Japan's three most populous and densely inhabited cities are Tokyo, Nagoya and Osaka (Okano, 1994). These three cities concentrate to form the so called "pacific-coast megaopolis" and travel between their urban area is regular. They are separated however, by mountainous topography which makes train the preferred method of efficient, fast mass transport (Okano, 1994). In the 1970's the Japanese National Railway (JNR) encountered huge financial difficulties and by the 1980's was on the verge of bankruptcy (Okano, 1994). This financial situation was in part a result of the rail industry not being immune to the loss of share that the increased use of automobiles in the inevitably brought, as has been the case in many parts of the world (Mizutani & Nakamura, 1997). Second, political intervention and highly conservative leadership hindered the JNR's decision making and slowed its ability to adapt to the times (Okano, 1994). Third, the public cooperation system that existed at the time, ensured that the government had to completely back the JNR, no matter how inefficient it was run (Mizutani & Nakamura, 1997). This system meant that at JNR, there was almost no concern with the possibility of bankruptcy (Mizutani & Nakamura, 1997). Public ownership resulted in no desire for structural adjustment and damaged work incentives (Mizutani & Nakamura, 1997). During this era, the JNR tended to be slow to innovate and adjust for user preferences, which as result meant it lost its competitive edge. Costs were not an issue and according to Mizutani & Nakamura (1997) the thought at JNR was that the government would make up the losses. This can be exemplified by the number of JNR employees for instance (Mizutani & Nakamura, 1997). The total number of employees peaked at a total of 400,000 which is no doubt excessive. By 1985 the JNR had incurred massive debt and there was pressure to eliminate this financial burden, so the government decided it was time to restructure its railways (Okano, 1994).

In 1987, the JNR was split up into 6 passenger companies which would be privately owned, and which were determined on a regional basis (Okano, 1994). An interesting aspect of the division is that it was determined by the geographical location of demand to ensure that each rail company would have as close to an equal footing as possible (Mizutani & Nakamura, 1997). Essentially both profitable and unprofitable lines would be located in each rail company's area of influence (Okano, 1994). The rationale for dividing the JNR into smaller

regional divisions was that local needs for rail service would be better attended to and the idea was that the 6 private companies would compete with each other, promoting efficiency (Mizutani & Nakamura, 1997).

Shortly after privatisation the six JR (Japanese rail) companies' broke JNR's previous ridership records and saw a sharp increase in demand (Okano, 1994). This was in part due to a boom in business in Japan, but also significantly influenced by the JR companies' heavy promotion of the rail networks (Okano, 1994). This increase in demand allowed for companies to operate at a net positive while only raising ticket prices marginally (Mizutani & Nakamura, 1997). The new JR companies were also allowed to operate non-rail businesses which helped to promote ridership (Mizutani & Nakamura, 1997). Other Japanese private rail operators at the time did this in forms such as bus operations, real estate development, and tourism. Japanese laws however prevented state owned businesses from doing this. Importantly, privatisation and the possibility to operate non-rail businesses, now meant one company had total control over transport, supporting infrastructure and land use and development, which meant that urban development and mobility could be shaped in a way that supported the use of rail. Essentially Japanese rail companies develop their environment which includes stations, retail, real estate, and transport services all favouring the development of railways (Van de Velde, 2013). While maybe not ideal for one company to have so much power and influence over development, it is highly efficient and has helped support rail quite effectively. The profit driven motives of the JR companies also promoted better labour productivity and cost savings which helped transition operations from running at a loss to becoming profitable (Mizutani & Nakamura, 1997).

Major concerns over the privatisation of rail included large job losses as well as safety concerns. The main concern safety wise, was that private companies would favour profit over safety (Okano, 1994). Contrary to their expectations however, accident rates have decreased significantly since privatisation. This was largely as a result of infrastructure and technology upgrades (Mizutani & Nakamura, 1997). Post privatisation there has also been the major issue of how to settle deep debt accumulated by the JNR which was still totaled at around \$240 Billion in 1994 (Mizutani & Nakamura, 1997). The process was not helped by the freefall of property prices in the 1990's which was meant to be the primary source of funds for repayment (Mizutani & Nakamura, 1997). The debt repayment has still yet to be settled and tax money is being used.

The restructuring of Japanese rail and the privatisation of rail for the most part has been successful beyond expectations (Okano, 1994). The move away from a monopolistic non-incentivised governance structure to a competitive profit driven transport industry has resulted in a highly profitable and efficient rail network in Japan, with the JR companies even expanding to purchase Japan's high speed Shinkansen tracks (Okano, 1994). Whilst the timing was fortunate, with Japan experiencing an economic boom and public demand for rail already high, there is no doubt that the restructuring and increased competitiveness of the JR companies has a major role in the success of Japanese rail restructuring.

2.4.3 Transantiago - Lessons from a troubled transport reform

In Santiago, the capital of Chile, an ambitious reform of the public transport industry, called Transantiago, was introduced in early 2007 (Gómez-Lobo, 2012). This was following a woefully underperforming public transport system, particularly the troublesome bus system, which was voted the city's worst public service in 2003 (Muñoz et al, 2016). The decision for the reform was driven by the full deregulation during the eighties which not unlike Cape Town, had left the city with about 3,000 informal operators, fierce road competition for passengers (as drivers' wages depended on the number of fares sold), no fare integration between services or with the underground, very long and inefficient bus routes, undignified treatment of passengers and a high accident rate (Muñoz et al, 2016). Furthermore, there were significant environmental pressures which influenced the decision for intervention, notably the fact that the old diesel buses which were poorly maintained created harmful emissions (Gómez-Lobo, 2012).

The reform saw a literal overnight change in the routes, fare structure, contractual relation with operators as well as many other dimensions of the city's public transport system (Gómez-Lobo, 2012). The government tried to integrate the well reputed but underutilised used underground Metro and the private buses and a modern bus fleet which was to be integrated with fares paid by touch-less smart cards. It also included an entirely new industry structure that was franchised through an international call for tenders, with operating contracts awarded to multiple firms (Muñoz et al, 2016). Much of the inspiration came from the vast success of other South American countries' attempts at public transit reform such the well-known examples of Bogota and Curitiba (Gómez-Lobo, 2012). The optimism that Chilean planners found in the Bogota and Curitiba cases was, however, misguided as they were far less complicated interventions than which Transantiago had intended (Gómez-Lobo, 2012).

The main goal of this radical overnight intervention called "the big bang", was to maintain and increase the public transport share of trips in the city. For this, the bus system had to be modernised and the quality of service significantly enhanced (Muñoz et al, 2016). There were, however, a number of design elements that were simply not ready or put in place and the results were immediately catastrophic (Gómez-Lobo, 2012). The crisis resulted in an eruption of riots due to many lines needing to be shut down as a result of the unpreparedness of the system.

The most important characteristic of the new system was the transformation of the route network from the point-to-point, non-integrated route scheme of the old system to an integrated trunk and feeder system. The city was divided into 10 zones, where local and feeder services would operate under a franchise arrangement (Gómez-Lobo, 2012). Transantiago did not consider the introduction of public subsidies as the aim was to be fully financially sustainable and self-funding. The absence of subsidies and the need for fares to be similar to the fares of the old system forced planners to reduce the costs of the new system through other means. In particular, the required size of the bus fleet was reduced to 4500 buses (from 8.000) (Gómez-Lobo, 2012). A large portion of new buses were required to be articulated high-capacity buses to make up for this. This was ultimately the root cause of many of the problems of the reform as the self-funding scheme required lower frequency operations in

order to ensure high demand, this however left residents frustrated with the long wait times and full busses arriving at stations (Gómez-Lobo, 2012) (Muñoz et al, 2016).

The political leadership had a role to play in the failure of the new system. The Minister of Public Works and Transport (the person responsible for the project) resigned two years before the planned implementation of 2007 (Muñoz et al, 2016). With only one year left before a new Chilean President was to take office in 2006, the replacement minister decided to slow down work on Transantiago, postponing important decisions until the new administration took office. This led to a number of crucial design aspects not being in place when the system was initially implemented. Most crucially, the buses had not been equipped with the necessary technology, making use of the smart card impossible and the segregated bus-only streets and lanes were not near construction, so the increased bus speeds assumed in the system design could not be guaranteed (Muñoz et al, 2016). In light of these issues, the new Minister made the decision that the first three months of operations would not be paid per passenger but rather on the basis of their demand and that the integrated fare would be flat and equal to the bus fare just before inauguration. This created a situation where the operators had little to no incentive to provide services and since their revenue was now practically guaranteed, they reduced the size of the fleet in operation from the original plan (Muñoz et al, 2016). This was compounded by the fact that the GPS system, that was meant to allow authorities to monitor and enforce that operators were offering adequate services, was not implemented. This led to massive queues at bus stops and transfer terminals, unacceptably long waits, extreme crowding on Metro services, and a general feeling of chaos that lasted for at least 9 months, well past the initial 3-month period (Muñoz et al, 2016). The infrastructure that did exist was overwhelmed and the flat fare system that was used started creating an operational deficit as passengers realised that they could make their commutes within 90 minutes, meaning they would pay for 1 ticket rather than the two officials thought the majority of passengers would need to purchase (Muñoz et al, 2016).

Much of the failure was attributed to the new Minister who was a lawyer. With no background in public transport systems or transport engineering, he was ill equipped to manage the challenges he inherited (Muñoz et al, 2016). When he was replaced by a more senior figure with ample expertise in directing large projects and institutions the Transantiago project saw positive change within the first year of implementation (Muñoz et al, 2016). Transantiago over the next decade would go on to work out the issues within the system by addressing the design aspects which were incomplete and by making a number of changes to their plans such as including subsidies into their financing model.

Muñoz et al (2016) argues that a positive takeaway of the project is that despite its many operating problems, Transantiago has shown that breaking a very strong public transport cartel and securing the participation of international operators can be achieved on a large scale and creating dynamic changes to a city wide transport network.

Ultimately, this case study provides a great account of how an unprepared administration implemented a plan or system that was not fully completed and as a result created chaos that required time, resources and expertise to fix. The Transantiago case furthermore highlights

how political change and a lack of political vision led to the derailment of Transantiago's implementation.

2.5 Conclusion

This chapter has explored a wide range of literature on mobility, land use and governance of transport systems. The review of literature helped identify themes to look for when undertaking both primary and secondary research and has helped to better direct and inform data collection going forward.

There is plenty of literature available that focuses on mobility systems both from a land use related, poverty reduction perspective. There are also many case studies that highlight policy changes and effects with regard to mobility. There is however, a lack of literature that focuses critically on South African governance of public sector owned rail.

It's not possible to understand mobility without also taking into account land use. The Medellin case highlights the impact urban mobility and spatial form can have on residents as well as how mobility systems can be enhanced with supporting land use policy. The lessons here are that careful consideration must be given with respect to how transport can help unlock land use potential and vice versa. strong, consistent leadership that shared a common vision for the city and how it could transform its most underdeveloped areas was a key factor to the metro's success. Political will, continuity and alignment are essential when attempting to achieve integrated transit that takes advantage of appropriate land use.

Funding of transport systems and urban infrastructure is a growing challenge as money is often stretched thin in African cities. this requires organised local authorities in order to implement alternative fund generating initiatives such as land-based financing.

With respect to governance, while there is no agreed upon best way to go about governing a transport systems, the Japan case provides a great outline of how the move away from a monopolistic non-incentivised governance structure to a competitive profit driven transport industry has resulted in a highly profitable and efficient rail network in Japan, furthermore Japan is a great example of how a rail company can support its network through integrated urban development and feeder systems. Context and policy environments are however very important. Privatisation happened at the right time in Japan with highly fortunate results which far outperformed many predictions and world experiences. Japan also had a massive demand for rail and a positive public perception which looked kindly on rail as a means of transit. Privatisation is far from the perfect solution and case examples of its failure are widespread.

Chapter 3 - Transportation in South Africa

Introduction

This chapter aims to depart from the broader international perspective of the literature in the previous chapter and switch focus to more specifically the Cape Town and South African experience. Doing this will serve to provide the reader with a deeper understanding of the rail system that exists in Cape Town as well as the context in which passenger rail operates. Furthermore, this chapter will highlight threads to follow through with when analysing data at later stages of the dissertation. This chapter will cover the development and geographic challenges unique to Cape Town, a short background on different mobility options and the importance/need for functioning rail, and lastly the challenges rail has faced and some of the reasons for its steep decline in the past decade.

3.1 Context and Development Challenges in Cape Town

3.1.1 Geographical challenges

Geographically, Cape Town sits at the start of the most south-west peninsula in Africa, nestled between mountains and both the Atlantic and Indian oceans. The geographical location of the CBD first established by Dutch in the mid 1600's (Worden, 1998), has had an extensive role to play in the shape of the current urban form. With the Atlantic seaboard to the West of the CBD and biodiverse and naturally beautiful and challenging to develop mountains to the South, naturally the city spread out of table bay and the city bowl in an Easterly direction, much of the development of the 20th century occurring on an area known as the Cape Flats (CoCT, 2018).



Figure 3: Historic development (Mammon, 2005).

The dominant form of development in Cape Town could be categorised as low-density urban sprawl, however with the topographic limitations to the west, sprawl has only happened in an Easterly direction. This has led to a semicircular, spoke and wheel shape with regard to development and transport routes (Turok & Watson, 2001). As Cape Town is one of the few cities in South Africa that has remained centralised with respect to its economic activity (Turok & Watson 2001), there is a need to transport the workforce a relatively large distance from the periphery into the central areas and back out on a daily basis as a consequence of its urban development. As a result, rail has been the backbone of transport in the city and has been a driving factor in the spatialisation of urban development.

More recently in the past decade there has been a shift towards more decentralised economic activity, the vast majority of this has been in wealthier areas. These expanding employment centres are however less well served by the commuter rail and bus network than the CBD, reflecting a more car oriented urban development direction.

3.1.2 Apartheid planning

“One of the greatest spatial challenges to overcome in the post-apartheid city is the inequality and spatial inefficiency caused by apartheid planning. Not surprisingly a World Bank report of the early 1990s considered South Africa’s cities among the most inefficient in the world. Cities were (are) characterised by low-density sprawl, fragmentation and separation, all of these

contributing to the dysfunctional structure where privilege was racially determined. Over a period of four decades, black South Africans were systematically marginalised, among others, in terms of accommodation, leisure, employment, and transport. Structural deficiencies in the former apartheid city, resulting from segregation and low-density sprawl, created long-distance work-travel patterns” (Donaldson, 2006:344)

Apartheid and the segregation of people has no doubt played a profound impact on the shape and development of Cape Town, which can still very much be seen today. At an urban level the use of apartheid planning resulted in cities and towns with very distinctive spatial forms (Harrison, et al., 2007). They were, and today still are, highly segregated by race and as a result also by income (Harrison, et al., 2007).

The Group Areas Act (GAA) of 1950, has been regarded as one of the most controversial statutes in South African history and embodied the essence of apartheid at an urban scale (Maharaj, 2020). It served as a powerful tool for the state to control the use and ownership of land on the basis of race (Maharaj, 2020). Between 1950 and 1991 more than 1 million hectares of urban space was rezoned on this basis of race (Christopher, 1997). The Group Areas Act resulted in the destruction of racially integrated areas like District six in Cape Town (Harrison, et al., 2007). Tens of thousands of people were forced out of their homes, some of which had been in the family for generations and were relocated on trucks to places like Manenberg and Hanover Park, which were on the far periphery of the city (Maharaj, 2020).

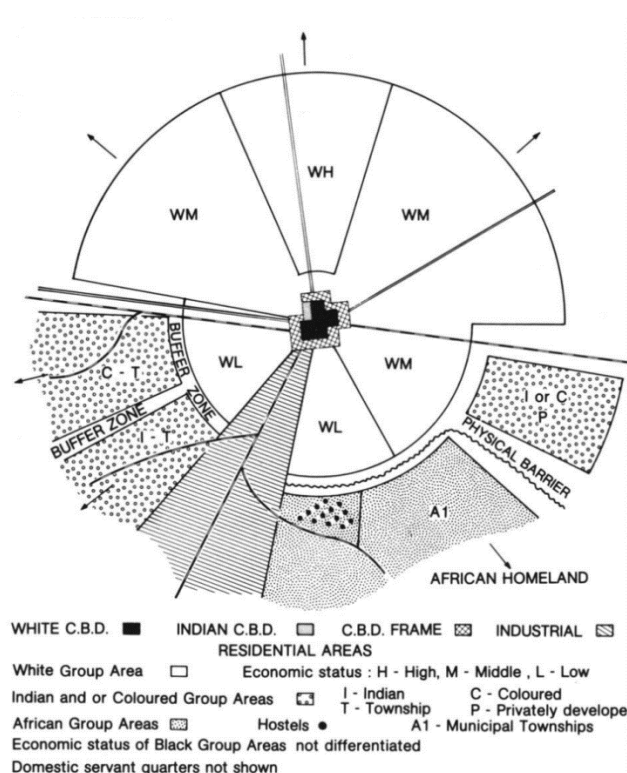


Figure 4: Model of the apartheid city (Davies, 1981)

These forcefully removed residents and the destruction of the once racially integrated inner-city neighbourhoods led to the creation of the Cape Flats, which after years of neglect on the

doorstep of Cape Town holds deeply distressed communities who endure financial hardship, crime and poverty (Maharaj, 2020).

Today, Cape Town, like most contemporary South African cities, is a reflection of the apartheid urban planning of the past, characterised by racially fragmented suburbs, wide inequalities and inefficient spatial ordering (Maharaj, 2020). The deep rifts left by the apartheid regime have not been able to be closed and the spatial order we see today is strikingly similar to the apartheid city of the past. The reconstruction and development program (RDP) was set up post-apartheid to deal with the deep scars left behind by the apartheid spatial planning. In essence it was aimed at creating state-led investment in infrastructure and basic services to address the backlogs and inequities of the past, for the reconstruction of South Africa (Harrison, et al., 2007). Whilst RDP has some success in urban renewal, development and housing, there has been criticism around the quality of infrastructure it produced at times (Harrison, et al., 2007) RDP promised to deliver a new South Africa yet it failed to live up to its promises (Corder, 1997). Namely, the fact that government funded post-apartheid low-income housing developments favoured cheap greenfield sites on the periphery reinforcing a lack of access to major urban opportunities in the city, instead of bringing people closer to these opportunities (Mammon, 2005). As a result, Cape Town is one of the most polarising cities in the world, with the Cape Flats and the peripheries of Cape Town, still see high levels of neglect and violence as well as poor services and infrastructure, contrasted with the well serviced, glamorous inner-city areas with some of the highest property prices in the country (CoCT, 2008).

In terms of mobility, there is not only an unequal distribution of infrastructure, amenities and accessibility, but the distances between the places in which the poor and the well off live exacerbate that inequality creating socioeconomic segregation (Berrisford, 2011). Oftentimes commuters from poor households that make use of public transport may have to dedicate up to 45% of their household income to travel as a direct result of the location in which they live compared to the location of jobs in the CBD (CoCT, 2018). The Cape Town CBD and northern and southern suburbs contain 80% of all formal jobs in the city, but only 37% of the population, therefore a huge daily movement of commuters is necessary (Turok & Watson, 2001).

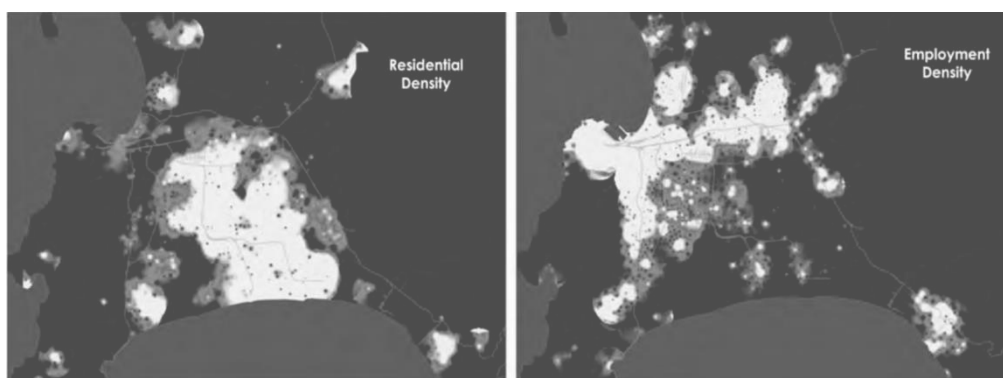


Figure 5: Residential vs Employment density in Cape Town (City of Cape Town, 2018).

This disjunction and inefficient urban form create major challenges for the transport systems of Cape Town. With regard to rail, the urban form of Cape Town makes new routes incredibly expensive to install due to the distance that needs to be covered as well as the number of stations that would be required to connect the far parts of the city to the CBD. Following the same idea, current rail lines have unusually high maintenance costs due to their length, number of stations as well as other supporting infrastructure (Berrisford, 2011). The low-density sprawl which characterises the Cape Flats also means that there is a vast area that needs to be served by the rail network and as a result it is not possible to have stations in every neighbourhood due to the cost but also the critical mass needed to support a rail service (Turok & Watson, 2001). Furthermore, due to the daily tidal movement of commuters, the rail system is currently optimised for commuter hours whilst offering fewer trips outside of peak times.

The privately owned Minibus Taxis (MBT) operators fill in this gap left by the rail service, as they are more efficient at making short trips and connecting passengers with smaller destinations. However, the huge tidal flow of people in and out of residential areas to the CBD and back to the suburbs each day create huge congestion problems on Cape Town's already over-relied on metropolitan road network.

3.2 Mobility in Cape Town

3.2.1 Brief background on mobility

Looking beyond Cape Town, at a national level, the country has the 11th largest rail network in the world with just over 30 000 km of track and is regulated by the Department of Transport and operated by PRASA which is run by the national government (Republic of South Africa, 2022). Rail played a vital role in the economic growth and development of the country, connecting populations across the country and later allowing for the boom in mining and agriculture (Republic of South Africa, 2022). Rail had a key role in determining the spatial organisation of urban areas and industry (Fourie & Herranz-Loncan, 2015). In Cape Town, rail is the backbone of the city's transport system and when it was functional provided services from many of the highly populous peripheral regions all the way to the CBD. Apart from the steep decline in service due to the mismanagement of South African rail and cutbacks of subsidies (Clark & Crous, 2002), it has also not had as much success in recent decades due to other forms of transport being more competitive. Road infrastructure was initially regulated to protect rail in the 1930's, however, with its deregulation in the late 1980's and with a poorly maintained, ageing rail network and outdated rolling stock, both freight and passenger transport by road became a more attractive option due to the operational inefficiency of rail (Republic of South Africa, 2022). This is not unlike many parts of the world, where rail was outcompeted by road-based transit as a result of heavy investment into road infrastructure.

As a result of rails inability to adapt to the change of times, the road network has seen massive investment which has cemented it as the country's primary transport network. Virtually all long-distance freight and passenger rail services are out of operation in favour of buses, cars and trucks (Republic of South Africa, 2022). For South African cities this has resulted in a

number of state-owned bus services being operated as well as numerous privately owned MBT, from a public transport point of view.

Golden Arrow is the largest and best known bus operator in Cape Town, its roots as a strictly bus service provider go as far back as the 1930's when electric trams were phased out in favour of electric buses powered by overhead power lines, known as trolley buses. In fact, the competition posed by these buses led to the closure of the sea point tramway which once connected the CBD to Camps Bay as well as the Milnerton rail line (Golden Arrow Bus Service, 2023). This competition towards rail-based services ultimately led to the regulation of bus services in the 1930's, which saw operators required to hold certificates and permits (Golden Arrow Bus Service, 2023), much like the operating licences, which are still used today.

Whilst rail offers a number of routes suitable for bulk passenger carrying capacity, many neighbourhoods do not have direct access to the rail network. The Golden Arrow bus service fills this gap in transport that rail cannot offer. The Golden Arrow bus service, although operating under different names and ownership, has been operating since 1861. Today it is Cape Town's primary bus service offering trips city wide. Cape Town more recently has introduced the MyCiti BRT service which services major transport routes which feed into the city.

Minibus taxis stem back to the early days of motor transport which began to take pace in the 1920's (Khosa, 1992). The South African passenger transportation system was designed for daily transportation of labour to and from the workplace, this often involved transporting black Africans from the fringes of urban centres into the cities, based on the racially segregated design by minority rule (Thomas, 2016). Minibus Taxis (MBT), by far, transport the largest number of commuters in Cape Town (roughly 60% of commuters), MBT are clearly a vital part of the city's transport system and are the primary form of public transport as a result of governments lack of effective transport provision. An important point to note here, is that the minibus taxi industry was also seen as a significant economic opportunity for people of colour who had been severely marginalised by apartheid policy in the past (Wilkinson, 2010).

Privately owned MBT operators use 12-seater people carriers and operate city wide from the city's taxi station infrastructure. These fleets of privately owned buses, minibuses provide mass public transport to urban populations typically on an unscheduled service basis. MBT's also offer high levels of convenience, with a price/distance fee structure and the ability to make stops practically anywhere. "The minibus taxi provides the highest level of connectivity in the entire metropolitan area of Cape Town, with 60% of the street network within walking distance of a taxi stop. In stark comparison, only 8% of the street network is within 800m of a train station and 14% of a BRT stop." (Daily Maverick, 2023). Today, taxis have filled in the gap left by the ailing rail system and the industry has marked itself as the largest mover of people, followed by the private car (SABC, 2023). The taxi industry is currently relishing in the failure of rail and have an no issue with poor rail operations continuing the contemporary over reliance on roads for both transport and freight has however, resulted in severely congested cities with roads that require an enormous amount of maintenance and upkeep, leaving much to be desired by way of non-road-based public transport (Republic of South Africa, 2022).

Bus rapid transport is the most recent development for public transport in Cape Town, with the CoCT implementing the MyCiti BRT system in 2010. The idea was initially tabled in 2007 by the mayor at the time Hellen Zille, which eventually saw the first vehicles running in May 2010 as part of transport arrangements in support of the 2010 FIFA World Cup (Boulle & Van Ryneveld, 2016). This was followed by an incremental expansion of services in four phases. Currently phase 1 which consists of 40 stations and the N2 Express (Boulle & Van Ryneveld, 2016), has been completed and the programme is in the second phase of expansion (MyCiti, 2023). The continued expansion of the MyCiti BRT system arises from the City’s Integrated Public Transport Network (IPTN) plan, which will see a continued phased implementation approach of MyCiti services across the entire city well into the 2030s (MyCiti, 2023). This is part of a commitment to redressing spatial inequality and implementing effective integrated transport in Cape Town. Ultimately the project aims to eventually see dedicated BRT lanes on major trunk routes with a network of feeder routes in support of this (MyCiti, 2023).

Mode	Owner	Funding	Regulator
Passenger Rail	PRASA	Subsidised by National Treasury + Fare Revenue	NDoT & National Rail Safety Regulator
Bus Service	Golden Arrow + Sibanye	Operators + Fares + Provincial Treasury	Provincial DoT
Minibus Taxi	Private Operators	Fare Revenue + Operators	Provincial DoT + Taxi Associations
BRT	MyCiti	CoCT + Fares + grants NDoT Public Transport Infrastructure Grant	CoCT

Figure 6: Cape Town public transport overview. Adapted from Wilkinson (2010) and CoCT (2018).

It is important to note here that each of the public transport options that exist in Cape Town are owned, operated, funded and regulated by a range of different actors. There is no single regulator, owner or operator for any of the different transport modes. This is a major point of contention when it comes to integrated, intermodal transport. This fragmentation is largely a result of development of different modes of transport at different stages over the past century without much thought or planning directed towards a clear institutional framework as outlined by the very recent White Paper on the National Rail Policy 2022 (Republic of South Africa, 2022).

3.2.2 Importance of rail in Cape Town

In Cape Town, rail is a major structuring element of the city's built form, meaning it has shaped where and in what order development has taken place. As a result, rail has become the backbone of our transport network, shifting millions of people per month in 2008, while the rail network was at its peak (PRASA, 2009). More recently however, there has been a massive decline in rail ridership (Just 3% in 2019) due to incredibly inconsistent service as well as the loss of operation on key routes (CoCT, 2022). As a result, in 2019 private car use in Cape Town stood at more than 40% While MBT were the second-biggest provider of commuter transport, moving just under 25% of Cape Town commuters (CoCT, 2022).

Development trends of the recent past, have tended to reinforce spatial divisions and fragmentation rather than assist urban integration (Turok & Watson, 2001). As a result, there

is a widening gap between Cape Town's impoverished townships and its affluent areas (Turok & Watson, 2001) (CoCT, 2018).

"The provision of safe, accessible, and affordable public transport infrastructure is a fundamental prerequisite for the socio-economic advancement of the South African population" (Thomas, 2016:352). There is a very real need to create better access and mobility for these impoverished areas in Cape Town. Rail is with no question the cheapest form of public transport available to Capetonians especially when comparing longer distance trips required to commute from the Cape Flats to the CBD where MBT prices can be exorbitantly high (on a monthly basis in 2015, R184 - Rail / R322 - Bus / >R700 - MBT) (Cape Talk, 2015). Rail as the least expensive option can reduce the financial stress of commuting and travelling within the city for many of the poorest. Passenger rail has the potential to move the greatest number of people, transporting anywhere between 800 and 2400 people at full capacity and depending on the number of coaches. This has the potential to reduce congestion and the stress placed on the road network which in turn is a net benefit not only for private vehicle users but also for road-based transport operators and freight. Due to ineffective transport systems, congestion is a major challenge in many developing countries. The average one-way commute in Rio de Janeiro in 1999 was 107 min while in Bogota it was 90 min (Gakenheimer, 1999). Cape Town is not immune to this trend as urbanisation continues and the population continues to grow.

I spoke to a man waiting at a taxi stop close to my home. He worked as a gardener and regularly used taxis and the train. From his home in Masiphumelele, it costs him 17 rands to get to the Fish Hoek train station. From there it would cost him 9 rands to take the train to Wynberg for work (the same trip would cost 120 rands by taxi). This represents a significant saving, particularly for those who are earning a minimum wage, who may only be earning a couple of hundred rands a day. To put this into context, the minimum hourly wage in the UK is 10.5 pounds or 240 rands, this is more than 8 hours of work at the South African minimum wage rate.

There is also a major element of sustainability to consider too. Whilst rail was thought to be a "dead" technology in the mid-20th century in favour of road, water and air transport, in recent decades much of the world has turned to rail in order to meet their sustainability goals (Republic of South Africa, 2022). Transport continues to dominate energy consumption in Cape Town. 91% of all liquid fuel relating to passenger transport is consumed by private cars while metrorail, buses and MBT (which transport half the population) make up just 9% (CoCT, 2016). Rail has a major benefit over road transport in that it can be relatively easily powered renewably, and it is able to transport massive amounts of freight or people over a long distance highly efficiently (Republic of South Africa, 2022). In Cape Town, a city dominated by road transport, rail can have an important role to play in reducing our energy requirements and emissions (Republic of South Africa, 2022).

Rail is not just the backbone of the transport system but also a key component of Cape Town's spatial form transformation strategy discussed in the Cape Town SDF (TDA, 2018). Seeing as historically urban development has been located along the rail lines and major roads (CoCT, 2018), rail if managed correctly could play a major role in the positive transformation of the city's urban area. Furthermore, rail could play a vital role in the success of introducing a truly

integrated, intermodal public transport system in conjunction with MBT's and BRT, if smart decisions are made regarding its management and future development.

The City of Cape Town has been pushing for the devolution of rail for a number of years as it is such an important asset for the city which has become completely defunct. Yet despite numerous calls for devolution, the national government has not entertained the idea of devolving the rail function. Wilkinson (2010) and Walters (2013) argue that this is due to tensions and political battles that result in difficulties with relationship building and coordination between the DA-led CoCT and the ANC-led national government.

3.2.3 Governance of Metrorail compared to international norms

South Africa's rail industry is almost entirely monopolistic, with the exception of a very select few private single line and long distance operators, most famously the high speed Gautrain and the tourist (Republic of South Africa, 2022). Almost all freight rail is owned and operated by transit, while almost all passenger rail is owned and operated by PRASA (Passenger Rail Agency South Africa). Both of these operators are entirely owned by the South African National Government. There has been a history of monopolistic behaviour as a result, including insufficient capacity to meet demand and poor service quality. Rail has been in a dire condition in South Africa for a number of years now (Republic of South Africa, 2022) and it is generally agreed that part of the prevention of PRASA's unbundling could be attributed to cross-subsidisation from Transnet port authorities excessively high port charges (Republic of South Africa, 2022). The monopolistic nature of South African rail has resulted in very little incentive for competitiveness and a need to devise modern development strategies (Republic of South Africa, 2022). Transnet and PRASA also have a hold over all of their rail infrastructure and as it currently stands, do not provide private access to their rail infrastructure. This means that even if the private sector wanted to operate trains both for freight or within a one of the country's metropolitan networks, there is currently no possibility to do so (Republic of South Africa, 2022). This is a clear distinction between the national control of South African rail and experiences internationally where national authorities in many instances allow free access to private operators wanting to offer services on the nationally owned rail network.

Conclusion

This chapter has provided an overview of the contextual realities of Cape Town from both a developmental perspective and a transport perspective. This chapter has provided a framework on which to apply the lessons from the literature to the more local context of the case study.

The takeaway from this chapter is that rail operates in a uniquely challenging environment from a urban form and mobility perspective, however, rail has the potential to better connect the city by providing more affordable mass transport while promoting equity. Rail is of key strategic importance to improving mobility in Cape Town and should function as the backbone of the city's transport system. This is, however, not the case as rail has been plagued by

challenges that stem from poor management and loss of important infrastructure. Cape Town's rail is also operated by the national government in a monopolistic market, which raises questions of how effectively local needs are being addressed. Furthermore, rail in Cape Town has seen a steady decline in usage and revenue generated and has faced an array of challenges. This highlights the need for a renewed approach and commitment to rail in Cape Town as the current status quo is not fulfilling the needs of the city and its commuters.

Chapter 4 - Methodology and Techniques

Introduction

This chapter explains the methodology and data collection used in this study and provides the reader with a detailed overview of how the research was undertaken. This chapter outlines the interview process and the interview participants and lastly, limitations experienced throughout the research process is also identified.

4.1 Research Method

The method that was used for this research was case study. The following section will outline what case study entails as well as why it was chosen for this research as well as the potential advantages and drawbacks.

4.1.1 Case Study Research

The notion of a Case Study, I define as: ‘The detailed examination of a single example of a class of phenomena’ (Flyvbjerg, 2011. p301). The research question at hand is specifically focused on commuter rail within the context of Cape Town’s metropolitan area. The research is set within a specific context which lends itself to case study methods as Cape Town’s rail system itself is the single unit or area under study (Flyvbjerg, 2011).

The case study method helped illuminate this specific context and help to make direct observations and collect data in natural settings (Yin, 2004). Therefore, it required information to be collected relating to Cape Town’s rail problems and context specific challenges as well as information regarding solutions and methods to amend the current issues. This information was later interpreted and examined. The case study research method required simultaneous collection and interpretation of data and information in order to triangulate findings and analyse any differences in information, to gather an understanding of the case study at hand (Yin, 2004). The interview process involved local and municipal government planners as well as persons highly familiar with PRASA.

This particular research question did not aim to generalise this case in terms of commuter rail systems in other cities as the issue under study is bound by the geographic location and the time period in which the issues have arisen. The case study method provided a comprehensive description of how the issues in Cape Town have arisen over the past two decades and allows this to be applied to a specific context which helps to identify ways forward (Flyvbjerg, 2011).

Again, the advantage of using the case study method for this research was primarily that it was able to derive specific context-related knowledge. The case study method also lent itself to the interaction of multiple research techniques and analytical tools, which allowed for detail and nuance in data collection, analysis and triangulation.

The case study method, however, was limited in that it was not always possible to apply the findings to wider contexts. This as a result may reduce the effectiveness of this research to be valuable in different contexts, However, the case study method may still provide a great understanding of the Cape Town context and generate well contextualised knowledge for the specific area of focus (Flyvbjerg, 2011).

Researcher bias was also a problem that one needed to take note of, not necessarily a flaw of case study but as a human tendency toward verification in general, of which the case study method possibly created room for which I believe to be a limitation (Flyvbjerg, 2011). Researcher bias could be understood as a tendency to confirm the researchers preconceived understanding of the issue under study (Flyvbjerg, 2011). To avoid this, I made room for proper analysis of the results and to explore ideas which may contradict favourable results to rigorously explore all options. I also triangulated viewpoints from interviews where possible with news reports, government documents and online interviews.

Case studies are generally described as a qualitative method. Qualitative methods are used to answer questions about experience, meaning and perspective, (Hammarberg, 2016) the data gathered by qualitative methods are generally of descriptive nature rather than numerical. Qualitative methods can be used to understand a human perspective regarding research questions (Hammarberg, 2016). Qualitative research techniques include group discussions and semi-structured as well as structured interviews, from which views on a focused topic with key informants can be drawn from for both general information as well as institutional perspectives (Hammarberg, 2016). Furthermore, analysis of texts and documents can be used to extract and interpret more detailed and widely distributed knowledge (Hammarberg, 2016). In contrast quantitative research methods are appropriate when specific numerical data are required to answer the research question (Hammarberg, 2016). Quantitative research often can be used to evaluate or test a hypothesis that was created before data collection (Hammarberg, 2016).

This case study relied on both qualitative and quantitative data to strengthen its academic rigor as qualitative data alone may not be sufficient when it comes to quantifying certain details regarding rail such as ridership, economic performance, spending and so on. A Case study can also contain the use of both primary and secondary data collection. This paper used both. Primary data was used as it helped capture rather in depth and unfiltered qualitative data, whilst secondary data helped support the broader, wider ranging questioning.

4.2 Research Techniques and Analytical Tools

The research techniques and analytical tools I employed are interviews, policy and legislative review, as well as data collection from reports and press articles and 3rd party interviews.

4.2.1 Interviews

Interview techniques can consist of structured interviews, semi-structured interviews, and open-ended interviews, with focus groups or individuals. For the purpose of this research the following interview techniques will be employed:

Interviews were held with transport and spatial planners, City of Cape Town and provincial planners, and decision makers within PRASA.

Interview 1	Catherine Stone	Catherine Stone is currently the director of spatial planning at the Western Cape Government and was formerly the director of spatial planning & urban design at the CoCT Catherine has over a decade of experience working in Cape Town municipal government.
Interview 2	Brett Herron	Brett Herron is currently a member of parliament representing the Good Party. Brett was the Mayoral Committee Member for transport in Cape Town and was a member of the Transport and Urban Development Authority (TDA).
Interview 3	Dries Van Der Walt	Dries Van Der Walt was the acting CEO of PRASA for three years prior to his retirement. Dries was a transport economist and spent spend a lot of time in the planning environment with strategic rail network planning and dealing with the interaction with cities on land use and economic activity
Interview 4	Peter Ahmad	Peter Ahmad is a highly experienced spatial planner with decades of experience, many of which were spent with Cape Town municipal government. Peter's work included the 2018 Cape Town spatial development framework which has been an important document in crafting this research.

Semi-Structured and open-ended, one-on-one interviews were key for the research topic. Interviews allowed for face-to-face interaction and acquisition of knowledge which gave me as the interviewer not only valuable deep insights but a better understanding of the case from the perspectives of people who may have all sorts of connections to the topic under study. Interviews allowed for primary data collection, while being able to transcribe interviews for further analysis and comparison at a later stage. Face-to-face interviews also allow for a deeper understanding of what interviewees are trying to tell us, through mood and body language.

Open-ended interviews allowed for more conversational relaxed interactions allowing for deeper connections and trust with the interviewees, however, they were quite time consuming in certain instances and required a fair amount of work to schedule and organize. Semi structured interviews were necessary for pointed questions that kept the discussion on track, and the interview needs a more precise focus. I aimed to interview different experts in a wide range of institutional areas to gather a deeper understanding of the issue at hand and to ensure triangulation and validity of information.

Interviews were to be done in a controlled environment where possible to avoid distractions and interruptions or unexpected behaviour (Roulston et al, 2003). Interviewees were made as comfortable as possible and I always gave the interviewee final say over where interviews take place to allow for relaxed interactions conducive to the sharing of knowledge (Roulston et al, 2003). Furthermore, after the interview process, I transcribed interviews as soon as possible to capture the interview with as clear memory as possible. I also aimed to transcribe in as much detail as possible adding in pauses and noting the body language and tone used while answering questions to ensure accurate representation of the words spoken (Roulston et al, 2003).

This primary source of data collection helped dive into deeper questioning of the issues identified within the literature review. While secondary data may have been adequate and proved useful for policy review, interviews were necessary for understanding issues that may not be fully expressed in legislature and policy.

4.2.2 Policy & legislation review

Part of the data collection and analysis process included a review of important transport and rail policy from all three spheres of government. The overall aim of the policy review was to provide a short, sharp, critical analysis of South African policy development. Critically tracing the impacts of policy, the politics, ideologies, and topical discussions that have culminated in the transport policy landscape in South Africa, at each sphere of government. This helped spot weaknesses in policy as well as to identify what policy allows for and what the general thinking or stance of each sphere of government is as of present.

4.2.3 Press and news articles

Reading press and news articles was an important method for collecting data. The rail issues have been regular topics in the news for a number of years. As a result, there have been many news publications on passenger rail and importantly there are a number of recorded interviews available by both news and radio agencies. These interviews include important figures such as the current PRASA CEO, the mayor of Cape Town and the Mayco member for transport, these are individuals who are deeply informed on the topic and who I was not able to get first hand interviews with.

4.2.4 Data Analysis

This required permission from interviewees to record the interview and using the recording to transcribe what has been said in order to analyse post interview. The content within interviews was organised or "coded" into the key themes or categories of my research question, which emerged during the research process as well as predetermined categories based on literature review, this then helped inform interviews and research directions down the road for more data collection (Silverman, 2015).

4.3 Limitations

Due to the fact that first hand interviews were conducted, research limitations include the potential for subjective quotations of what people have said, which can lead to telling one side of a story or an incomplete truth. This was addressed by including as wide a selection of participants as was possible within the time constraints of a Master's dissertation. The study included participants from the city of Cape Town, Western Cape Government, a position in politics, and former executive of PRASA. This was to ensure that the viewpoints of participants came from varying perspectives. Other limitations include a number of reports that were unfortunately not accessible. time was a limiting factor as there was not enough time to apply for a research request at the city of Cape Town in order to interview current staff that might be working on rail and land use related issues.

4.4 Ethical Considerations

I aim to facilitate an ethical approach to my research. I achieve this by doing the following; Firstly, I aim to make the intentions of this project as transparent as possible when approaching potential interviews or anyone involved in the study. Trust is one of the most important aspects of conducting this research and I will do everything possible to not break trust with any persons involved. I aim to minimise the risk to my participants both emotionally and physically. I will obtain written consent to record use interviews for analysis and research as well as the right to anonymity. Consent will also be obtained from participants when photographing any persons within the context of this research. All information obtained from participants will be stored securely and will only be accessed by myself and shared only upon consent to do so. As this research may contain an element around past injustices due to apartheid planning, any interviews or photography relating to this topic will be approached with utmost sensitivity and care.

Importantly I aim to meet all the standards set out by the EBE Ethics in Research handbook and aim to follow in line with UCT's research ethics.

Chapter 5 - Policy and Planning Framework Review

Introduction

This chapter serves as part of the findings portion of the thesis. This chapter will first review transport policy and legislation in South Africa that pertains to rail. This will be done in three categories, the National, Provincial (Western Cape), and local (City of Cape Town) spheres of government with legislation and policy in chronological order. This will provide a detailed overview of the policy landscape in the country and will highlight areas in which institutional change is possible. This review will not be extensive and will rather review key policy and legislation documents that pertain to the scope of the research.

5.1 Transport Policy and Legislation

5.1.1 National Policy and Legislation

The **Constitution of the Republic of South Africa (1996)** is an obvious place to start as it sets the base or foundation from which all policy and legislation can be applied. The constitution outlines that public transport in South Africa is both a national and provincial competence, while municipalities have exclusive competence of municipal public transport. This means that public transport which is listed in schedule 4 of the constitution a provincial legislature or the national legislature can make laws thereon. Section 154 (1), the Constitution (1996:75) states that “The national government and provincial governments, by legislative and other measures, must support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions.”. Furthermore, section 40 (1) of the constitution (1996:21) states that “All spheres of government and all organs of state within each sphere must... be loyal to the Constitution, the Republic and its people; respect the constitutional status, institutions, powers and functions of government in the other spheres; exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere;”. This is an important point when it comes to the debate of devolution of rail, as PRASA and the national government's failure to manage rail correctly could be argued to be hindering the municipal government of the CoCT to offer sufficient transport. Section 156 (4) 27 of the Constitution makes provision for assigning any function to a municipal authority if the municipality can administer it effectively and has adequate capacity. Thus, if there is a role or function that the National or Provincial government is failing to fulfil, such as failing to adequately manage a mode of transport, the municipality may, in theory, be able to take over the functions. In reality however, this has not been applied in the case of the CoCT.

The next relevant policy is the **White paper on National Transport Policy (1996)** while it does not refer to rail specifically and transport more generally, it has helped shape the institutional landscape of the transport sector, which can still be seen today. This policy stipulates which sphere of government should be responsible for different forms of public transport.

Importantly it states that the provincial government is responsible for buses and taxis while the national government is responsible for the provision of rail (DoT, 1996). Much like the constitution, this policy stipulates that rail will be a national function until a lower sphere of government can take over (DoT, 1996). Importantly however, this policy aimed to introduce public-private relationships to help revitalise the rail network as well as to proactively facilitate shifting freight and passengers from road to rail by promoting rail as the mode of choice by providing an efficient, reliable and safe setting for passengers and freight (DoT, 1996). This policy outlines briefly the main rail challenges which were infrastructure and funding and stipulates strategies to address these (DoT, 1996). This policy highlighted the fact that contracting and regulating agency functions are a municipal function and transport authorities should be created to oversee this and facilitate the integration of all public transport services (DoT, 1996). This was a sound policy and shifted the thinking in terms of rail in the right direction for the future growth of the country, however, it is clear that proper implementation of this policy with respect to rail (and road based modes) was not achieved as many of the issues this policy aimed to address are still unchanged and capable municipalities have not been handed authority over transport modes previously held by national and provincial spheres.

The **Interim National Passenger Rail Plan (2005)** was a document produced to provide a framework to arrest the decline of passenger rail in the country. This plan highlights the trend of decline in the rail industry and aims to propose a number of potential solutions which would be drawn upon in the National Rail Plan (2006) - which was unavailable online at the time of writing. This plan outlines the necessity of adequate funding and subsidisation of rail, as passenger rail transport is generally not financially sustainable without government assistance (DoT, 2005). It further identifies the importance of proper land use planning and development at stations to support the use of rail. The essence of this plan, however, is the proposal to effectively break the national rail network up into a series of corridors categorised by importance and which mode of transit is best suited, and to direct funding and resources to these priority areas to stop rail decline and promote a road to rail transition, to catalyse the rebuilding of the rail network (DoT, 2005), essentially a spatially targeted approach. This is the proposal that was ultimately decided to be the best suited was called the Priority Rail Corridor Strategy, it was identified to have the potential to also support urban restructuring and urban regeneration initiatives in the selected priority corridors (DoT, 2015), however this was highly dependent on proper integrated planning. The Interim National Passenger Rail Plan (2005) and later the National Rail Plan (2006) (Unavailable), ultimately led to the release of significant funding to PRASA. These plans, however, were never implemented as intended and had little effect on arresting the decline of passenger rail. This will be further explored in the interview results.

The **National Land Transport Act (2009)** is successor to the National Land Transport Transition Act (2000). The NLTA outlines the role of the three spheres of government in coordinating and provisioning public transport as well as the responsibility of municipalities as planning authorities. The NLTA stipulates that the national government is responsible for assigning functions to the most appropriate sphere of government. The NLTA in this respect makes provision for public transport to be devolved to the local government level. It further stipulates the role of municipal government which includes ensuring safety and security of

transport, in its capacity as planning authority, preparing transport plans for its area, ensuring the implementation, and monitoring its performance of transport and stipulates that they are required to create and implement Integrated Public Transport Networks (IPTNs). With the current public transport governance structure however, being able to ensure these factors, is highly dependent on the performance of both national government for rail and provincial government for bus and taxi services. Currently the only public transport mode of which the CoCT has the full ability to fulfil its municipal obligations is the MyCiti BRT service which is has developed and implemented under local authority This emphasises the need for municipalities to implement universal design in all parts of the public transport system (DoT, 2023).

The National Development Plan (2011) is more of a large, nearly 500-page, general development plan which contains a series of proposals to eliminate poverty and reduce inequality, strengthen the economy and to plan for climate change and sustainability by 2030. It is, however, relevant in this context as although it does not contain specifics regarding rail, rail is one of many functions that will help this plan achieve its goals. Part of the implementation of this plan includes emphasis placed on the formation of transport authorities aimed at making institutional cooperation and complexities work more efficiently. And devolving transport functions to lower (Municipal) level levels of government (Republic of South Africa, 2011). The NDP (2011) states “The constitutional framework allows for more differentiation in the allocation of powers and functions, and this should be used to ensure a better fit between the capacity and responsibilities of provinces and municipalities. The existing system can be improved, with clarification of responsibilities in the areas of housing, water, sanitation, electricity, and public transport. Large cities should be given greater fiscal and political powers to coordinate human settlement upgrading, transport and spatial planning”. With regard to transport more specifically, this is yet to have materialised 12 years after the policy was introduced. Furthermore, this plan recognised the importance of both the passenger and freight rail network as of strategic importance and emphasised the need for the renewal of infrastructure and rolling stock (Republic of South Africa, 2011). The NDP calls for urgent investment in rail as an important necessity for achieving the country's vision for strengthening the economy, eliminating poverty, and reducing inequality (Republic of South Africa, 2011).

The National Transport Master Plan 2050 (2016) differs from the NDP in that it focuses on the transport vision of the country. It provides an in-depth account of the current and historical problems from a transport perspective and provides a vision of the country's transport sector that will result in transport that meets the needs of commuters, is safe, efficient, financially sound and will enable social equity, and economic growth (DoT, 2016). The National Transport Master Plan 2050 acknowledges that Governance and operational structures of transport are still fragmented, resulting in complex regulations and by-laws and a subsequent lack of uniform safety and operational compliance standards. It suggests that the implementation of intermodal transfers, fare structure, and the integration of an integrated ticketing system are generally not possible in the current passenger transport governance structure (DoT, 2016). It agrees that modal options are limited, particularly among low-income households, and result in the poorest of the poor often having no choice other than to use the most expensive form of passenger transport (DoT, 2016). The plan highlights the lack of land use and transport

integration impacts negatively on the effective implementation of mass moving passenger transport. The report goes into too much depth to summarise all the key proposals for the purpose of this research, but the important takeaways from the National Transport Master Plan 2050 include the following. In dealing with the issue of the role of the different spheres of government in passenger transport and the fragmented and uncoordinated delivery of passenger transport, it is proposed that devolution responsibilities be assigned to authorities as foreseen in the Constitution and prescribed by the NLTA; The development of better subsidised structures that incorporate all modes of public transport; Public transport planning guidelines must be developed, including the alignment of spatial and geographical development, population densities and land use patterns with appropriate modal and infrastructure responses; Long-term financial viability and funding mechanisms for the ongoing and ever-increasing operational costs of services (DoT, 2016).

The **White Paper on National Rail policy (2022)** is somewhat of a turning point in rail policy and has seen a renewed thrust by the CoCT in expressing the need and desire for a working rail system. The white paper on national rail policy recognises the fact that rail has had no cohesive policy over the years despite rail being positioned as the backbone of South Africa's metropolitan transport systems. This policy document recognises the funding issues that relate to insufficient investment and strong competition from road transport which is absorbing users. This policy further realises the need for competition in the rail market both with regard to passenger rail and freight (Republic of South Africa, 2022).

The white paper recognises the failings of PRASA to manage and provide rail services effectively. The White Paper acknowledges the need to devolve rail functions to the municipal levels in response to these issues, in line with the NLTA and the Constitution. The policy also importantly provides a basic road map that municipalities must follow in order to devolve functions. This includes the requirement to create a devolution strategy which must be approved to assist devolving functions. Once the devolution strategy has been approved, all urban rail functions such as planning, operations, funding, and maintenance, will be assigned to municipalities (Republic of South Africa, 2022).

This policy addresses the long-standing concern that municipalities do not have the resources to run the metropolitan rail systems, the white paper on national rail policy suggests that this is false and that the City of Cape Town for instance holds assets worth multiples more than PRASA itself and that municipalities do, in fact, possess the capacity to manage commuter rail (Republic of South Africa, 2022).

The White Paper on National Rail policy further outlines the roles and responsibilities of PRASA and states that PRASA will operate long distance and commuter rail (where functions are not devolved). The policy outlines the need for PRASA's recovery plan due to its shocking performance in recent years and outlines 10 key rail corridors that need urgent attention, two of which are located in Cape Town. The policy outlines the need for the development of a National Rail Act to help address conflict between national rail policy and the implementation of its mandates, and a National Rail Master Plan to ensure continued investment into rail and to strategize infrastructure and rail projects (Republic of South Africa, 2022).

The NLTA (2009) states that the minister must prepare and update a five-year **National Land Transport Strategic Framework (2023)** for the country to guide land transport planning countrywide in all three spheres of government, the latest of which was produced in 2023 which followed on from the 2017 framework. The NTSF is an important document for land use and transport as it acknowledges that transport and land use are inextricably linked and that a relationship exists between land use development and in many respects, land use development is unlocked by the provision of high-quality integrated transport infrastructure and services (DoT, 2023). The NLTSF is a framework for aligning and defining the objectives of national government with policy Statements that give direction to transport on a National scale (DoT, 2023). It sets the overarching goals, vision, and objectives for each element of the transport system at each level of governance. The NLTSF goes on to highlight the recent developments in policy that point towards devolution such as the White Paper on National Rail Policy (DoT, 2023). The NLTSF suggests that devolution of rail in particular is essential for better service and transport integration and emphasises the need for municipalities to implement universal design in all parts of the public transport system.

5.1.2 Provincial Policy and Legislation

The **Provincial Land Transport Framework (PLTF) (2011)** is a strategic document, whose purpose is to inform all transport and land-use related provincial decision making with respect to transport infrastructure maintenance and investments, public transport, road traffic safety and management, as well as to guide district-wide and local integrated transport planning (Western Cape Gov, 2011). Although there should be a new, more recent version of this framework, it is strangely not available online despite this framework needing to be renewed every five years. The PLTF provides a long-term vision for the Western Cape's transport development. This long-term vision, importantly for rail strives to provide, a transport system that is fully integrated with land use; a Transport System that is resilient to peak oil; An Efficient High Speed Rail Long Distance Public and Freight Transport Network; and a fully Integrated Rapid Public Transport Network in Higher Order Urban Areas (Western Cape Gov, 2011). This document urges pressure to be placed on Metrorail to improve their service and reliability on the province's key corridors. This framework then identifies many of the technical shortcomings of the rail network in the province as well as Cape Town (the largest metropolitan area in the province), that are preventing a reliable and inconsistent service to persist. This framework identifies that investment into the dwindling rail infrastructure and rolling stock are of absolute necessity, particularly in the Cape Town metro (Western Cape Gov, 2011).

The PLTF also identifies that there is currently no long-term plan for integration between rail and the MyCiti BRT system at a local level. The PLF states that rail must be better equipped to fulfil its role as the backbone of the Integrated Rapid Public Transport Network in the Cape Town functional region (Western Cape Gov, 2011). To address the fragmentation of the transport network in the province, the PLTF makes provision for a select number of municipalities to extend their role as planning authority to be expanded to cover Licensing,

Regulatory, Contracting and Subsidy Allocation functions for all modes of public transport including bus, minibus taxi and, where applicable, BRT and commuter rail.

5.1.3 Municipal Policy (Cape Town)

The **Integrated Public Transport Network (IPTN)** sets out a vision for 2032 and provides the strategic approach to designing an integrated public transport network for Cape Town that responds to the mobility needs of the future city, achieves an appropriate mix of modes, and provides reduced travel time for all trips. The IPTN encompasses the rail and road-based modes as well as making proposals for improving non-motorised transport access and park-and-ride facilities at modal interchanges. It determines which modes are best suited to cater for the existing and future public transport demand. The long-term network plan indicates prioritised public transport corridors (CoCT, 2018). The IPTN advocates for the MyCiti network and an upgrading and expansion of the rail network, particularly the Blue Downs link. Interestingly, the official policy is that rail passenger planning is to be done at the municipal level as part of their ITPN (DoT, 2005) The ITPN regards rail as an important part of their integrated public transport system which raises concerns that municipalities do not have effective powers in connection with planning of rail.

The Cape Town **Municipal Spatial Development Framework (MSDF) (2018)** sets out the spatial vision and development priorities to achieve a reconfigured, inclusive spatial form for Cape Town (CoCT, 2018). This framework flows from the five-year review of the previous MSDF. Fundamental to the Cape Town SDF is ensuring spatial transformation via dense and transit-oriented growth and development anchored by an efficient transport system (CoCT, 2018). The anchor of this system is rail. Rail, however, is not just positioned by the SDF as the backbone of the transport system, it is also the determining factor of spatial interventions and investment. The spatial plan is closely correlated to the shape of the city's rail network and thus effective rail operations is an essential factor for determining the success of Cape Town's future growth.

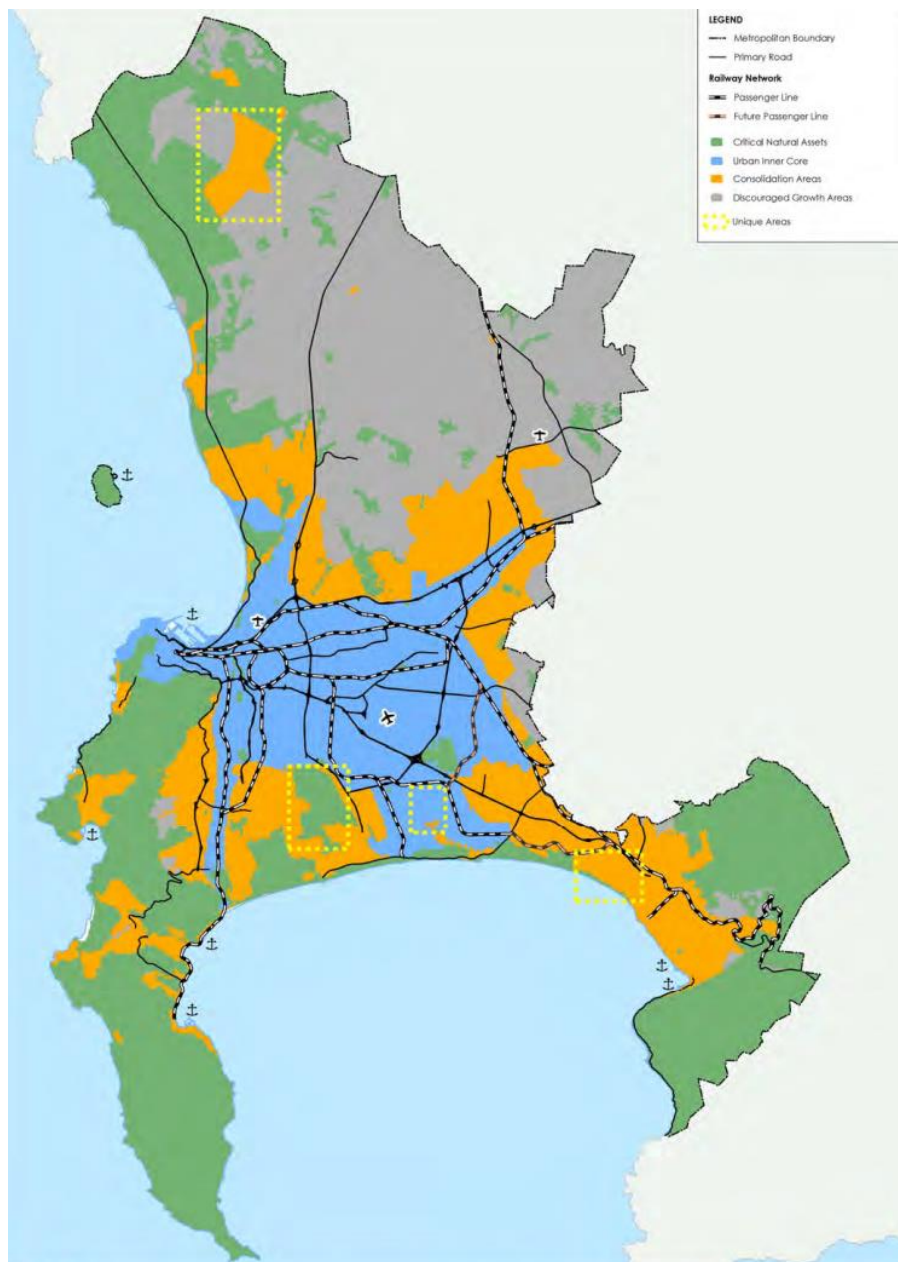


Figure 7: Close correlation between the inner urban core “blue turtle” and the rail network (CoCT, 2018).

The MSDF also highlights the need to support densification to reach the critical mass needed for financially viable transport lines for rail and BRT (CoCT, 2018). The MSDF clearly depicts the city's desire for transit-oriented development (TOD), which links transport with land use planning. The MSDF further highlights the need for the development of the new Blue Downs rail link which would provide rail access to many of the most vulnerable communities in the city. The SDF does, however, lack any sort of detail around the rail system and refers to its need for improvement more genetically. This is likely a result of rail planning being out of the CoCT's hands.

The **Comprehensive Integrated Transport Plan 2023 – 2028 (CITP)** serves as a five-year statutory plan which provides the City of Cape Town and its transport planning authority with

its mandate to manage its transport system. The CITP recognises that while the city manages the expansion and ongoing operations of the BRT system, it does not have a defined role in the development or operations of the rail system which hinders the potential for integration. One of the three main objectives of the CITP is to address the current rail crisis. The CITP stipulates what the transport planning authority is responsible for and how it will deliver an integrated transport system. It advocates for the integration of public transport with land use in line with the City's desire for transit-oriented development (TOD). "The intensification and densification of land use along rail corridors is also a key part of the City's TOD Strategic Framework." (CoCT, 2023). The CITP is geared toward lowering the cost of travelling, especially for lower income groups and states explicitly that spatial integration needs to be addressed (CoCT, 2023). The CITP recognizes that the City cannot deliver integrated and intermodal transport in Cape Town without an effective rail component. Furthermore, the CITP aligns with the MSDF as its rail is not just the backbone of the transport system but also of Cape Town's spatial form transformation strategy as detailed in the Municipal Spatial Development Framework Review. In response to the MSDF's strategy of densification, CITP argues that TOD will be most effective if the transport system is improved since a denser environment requires more efficient transport. TOD uses transport as a catalyst for developing the built form of a city to improve the way that people and goods are moved as well as reducing the need to travel, ultimately the belief is that this will make a city more efficient (CoCT, 2023). The CITP identifies station precincts as vital areas for investment and integration with land use planning. However, the failure of rail has negatively affected the city's ability to attract private sector development around nodal areas such as stations and has disrupted TOD (CoCT, 2023).

The CITP indicates the need for the city to receive rail functions to improve its transport functions and transport integration, particularly with the BRT system (CoCT, 2023). Currently, the City and PRASA are working together by means of a signed Memorandum of Action (MoA) that stipulates at least three key interventions that will assist in addressing the immediate rail crisis. Part of this MOU includes expediting the assignment of the rail function to the city, however, the details on the progress of this are largely unknown or unavailable. Since the rail component of Cape Town's transport network has not yet been devolved from national to local authority, the CITP states that the CoCT also intends to explore alternative rail solutions where appropriate, which includes light rail and monorail (CoCT, 2023).

Conclusion

This policy and legislation review is intended to give an overview of many of the policies and laws relating to the institutional governance of rail and the future direction of its development, throughout the national, provincial, and local spheres of government. The review has revealed that there is an array of plans, strategies, legislation, and frameworks throughout the three spheres that emphasise the need and desire for a better functioning rail system both nationwide and more specifically in Cape Town. the policies in general seem to correlate and speak to each other. Implementation of policies however seems to be where a major issue lies with many of the frameworks, policies and plans having similar recommendations for rail, yet no real change has manifested itself out of these documents.

The DoT and National government have, over the years, produced a number of policies, plans and legislation that highlight the issues rail has faced and point towards solutions of these issues. Devolution of rail to lower powers is mentioned time and time again, yet has never materialised in any metropolitan area, let alone Cape Town, who have shown a keen interest in the rail system for decades. There is a clear tendency for these plans, policies, and legislation to lack the implementation which they mandate. This will be further explored in the interview findings section that follows.

Chapter 6 - Results

Introduction

This chapter aims to answer the research questions set out in chapter 1 and to deliver the evidence and data gathered from field work, as well as from secondary data collection, including reports, articles, interviews and documents. Primary data collection included interviews with both CoCT (City of Cape Town) and PRASA (Passenger Rail Agency of South Africa) members and covers a range of experiences from municipal, provincial, and national spheres of government. This chapter will first provide a brief history of the problems that have led to rail decline before reporting on the findings from the fieldwork which will be grouped into different themes. Lastly this chapter will provide a discussion around the findings which will link the data collected, with the relevant literature discussed in chapter 2.

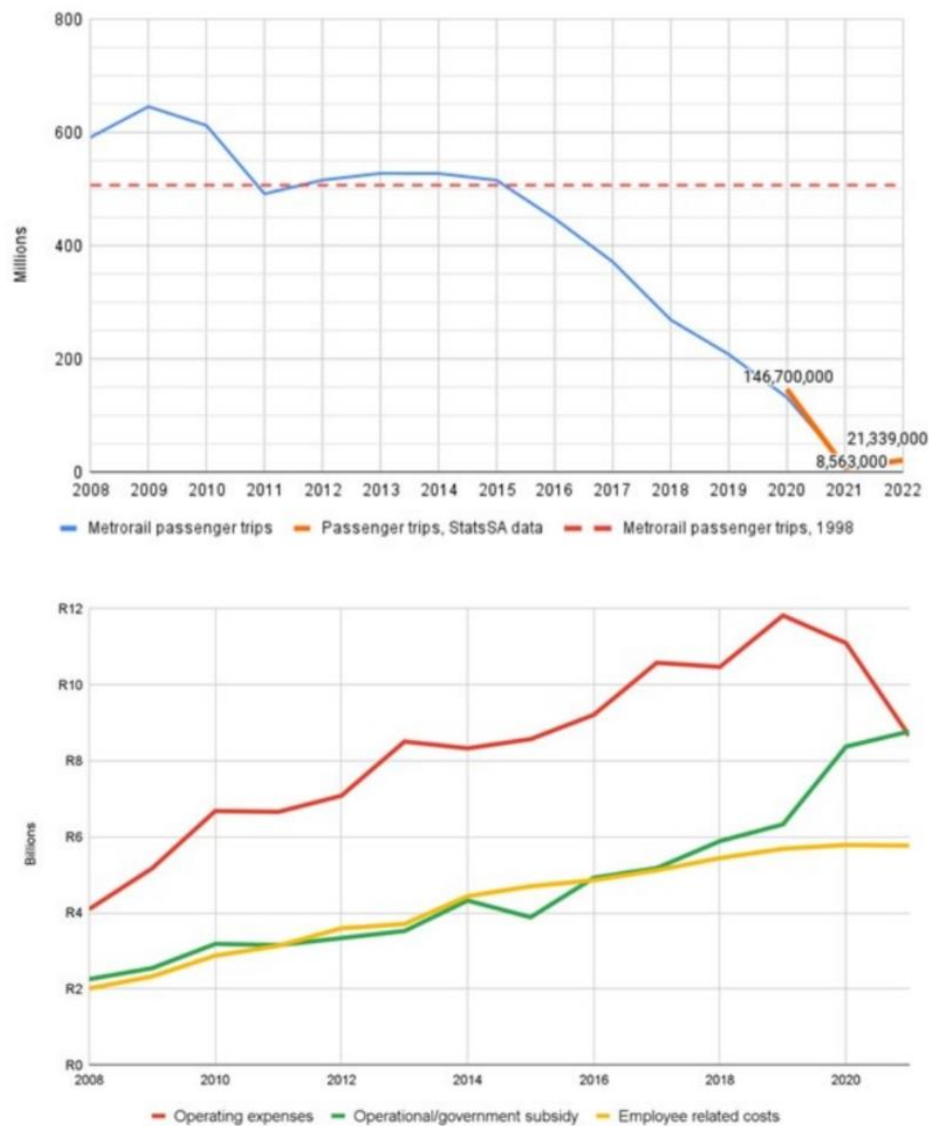
6.1 Overview of the recent history of passenger rail in Cape Town

Cape Town has a rather extensive and impressive rail network that serves the majority of the city's urban area with 270km of urban track. In total the metropolitan rail network is connected to 500 km of track that connects the city to neighbouring municipalities and regional nodes such as Worcester, Malmesbury and Stellenbosch. The rail network in Cape Town is a semi-radial shape, emanating from the Cape Town station towards the Northeast, East and Southern neighbourhoods of the city.



Figure 8: Rail Map (SA Transport, 2008).

On paper the Cape Town’s rail network may look impressive, however, due to years of mismanagement and neglect the rail system is currently at its knees with disastrously limited service. “In 1995, the network was served by 95 train sets consisting of 383 motor coaches and 807 coaches. By December 2019, this had declined to 44 sets in operation with some 27 sets operating with a reduced number of coaches” (CoCT, 2022). As of writing, trains only run regularly on the Southern line to Fish Hoek and the central line between Cape Town & Nyanga (Cutting off millions of residents who live in the Cape Flats) and partial operations exist on the Northern line to Bellville, this is crippling the ability of rail to function as the backbone of the city’s transport system.



Figures 9 & 10: Graphs showing steep decline in ridership while maintaining rising grants and expenses (Graphics by Ground up, data from PRASA annual reports & StatsSA - News24, 2022)

The reason for this decline in the performance of rail can be attributed to the total mismanagement of rail by PRASA and the fact that historically, PRASA has experienced a lack of investment which has resulted in dilapidated rail infrastructure and rolling stock (George et

al, 2018). This has resulted in challenges such as: out-dated rail infrastructure, rolling stock and technology; low levels of reliability and predictability affecting operational performance; Increased maintenance and associated maintenance costs; an open rail system, (tracks that have no walls or barriers preventing access) leaving it susceptible to theft and vandalism.

The rail system is plagued by a lack of new and upgraded infrastructure, severe lack of preventative maintenance, a deteriorating signalling system and rolling stock, all of which have contributed to a significant drop in passenger numbers (CoCT, 2023). Rail in Cape Town has seen increasingly very poor levels of reliability, punctuality and service predictability which ruined users' trust in rail as a means of transport (Republic of South Africa, 2022). PRASA reported that the main factors contributing to the unreliability of service have been rolling stock failures, infrastructure failures (signalling & electrical) and poor condition of the rails (PRASA, 2016). This resulted in significant increases of collisions (47%) and derailments (74%) from 201 up till 2016 (George et al, 2018). Historic under investment into rail infrastructure and rolling stock not only results in breakdowns that cause delays and unreliability, it has also resulted in poorly maintained, ageing assets which now incur high maintenance costs. In 2018 the average age of coaches was 40 years old (CoCT, 2018). Without a reliable service, commuters would rather avoid using the trains as they cannot risk the poor reliability when depending on the punctuality of trains to get to work on time. This is also a matter of convenience, commuters are tired of waiting at a train station without knowing if their train will even arrive (Ground Up, 2018), other forms of transport such as MBT and Golden arrow then look more attractive in light of this issue.

Following multiple informal household encroachments onto PRASA property from 2016 - 2019 (CoCT, 2023), in 2019 the central line that operates between Khayelitsha and Cape Town was encroached upon by informal settlers, leading to the shutdown of operations (GroundUp, 2023). This came around the time that PRASA had cancelled its security contracts in Cape Town, leaving its rail infrastructure unguarded (GroundUp, 2023). The global Covid-19 pandemic exponentially worsened this problem when rail operations were halted due to national lockdowns and restrictions on movement (GroundUp, 2023). Without trains operating and no security detail, the rail infrastructure and stations were extensively vandalised and damaged. This led to the shutdown of the central line (the line that serves the most economically valuable communities) for 3 years. Currently the line is only partially open. Repairs are still ongoing while operations are limited due to informal homes on track and infrastructure damages. Cape Town's rail system is what is known as an open system, this means that the rail tracks are not enclosed by fencing or walls. As a result, easy access to infrastructure has opened opportunities for rampant theft and vandalism over the years which have regularly disrupted operations (Republic of South Africa, 2022). During the Covid-9 lockdown period, entire train stations in Cape Town were vandalised to the extent that a number of stations simply no longer exist (Cape Talk, 2023).

Very few of the major challenges are new and have been experienced by the rail system regularly over the past decade. In Cape Town there is no definitive or clear timeline and recovery strategy that states what will be done and when trains will be running again. In order to get operations underway once again major physical obstacles still exist such as relocation

of informal homes that reside on the tracks, rebuilding and renovations of many stations, repairs and maintenance of track infrastructure, and procurement of rolling stock. Whilst the physical challenges to rail are rather well documented in the media, lesser talked about are the institutional challenges that have plagued rail for decades, this will be the focus of the following results section.

6.2 Findings & Observations

This section will report on the findings from the fieldwork which have been grouped into different themes and topics. In the following section, section 6.3 the findings will be discussed in more detail. The themes in section 6.2 are a result of the information gathered during from fieldwork and serve to characterise the information, whilst the themes or points of discussion in section 6.3 serve to relate the findings back to the literature reviewed in chapter 2.

6.2.1 Political and Leadership challenges

Rail is inherently political and as a result gets used as a political tool sometimes to the cost of the rail users. The political “games” as described by Herron (Interview 2, 2023) are evident in the multitude of press articles and news segments that record the statements between the DA and national government.

“This system [Cape Town] was run so well that it actually subsidised the other regions.” (Interview 3, 2023). The Cape Town rail system has traditionally carried some of the highest volumes of passengers and for PRASA has been an important revenue generator despite its issues with ticketing and free riders. This has meant that for PRASA the Cape Town rail system has been an important asset that has helped them to subsidise other metros. Today however, the Cape Town rail system is barely operational and certainly not in a position to generate any meaningful revenue to help subsidise other regions. However, Cape Town’s rail system is still an important political asset for the national government. Cape Town is unique in the sense that it is run by the DA party within the DA led Western Cape Province, while PRASA is a nationally held company with the national government being ANC led. Whilst parastatals are supposed to operate independently, it is often not the case and politics cross these lines (Cape Talk, 2023). DA led Cape Town has earned somewhat of a reputation for being well run and organised (Interview 3, 2023). When the question of devolution of rail arises, the Cape Town system is an important asset for the national government, because if rail is devolved to lower levels of government and is handed to Cape Town, and the city manages to good job or running it, it would not be a good look for the ANC and would play well into the hands of the DA party (Interview 3, 2023). As Dries van Der Walt states (Interview 3, 2022) *“I think that politics is a player. Obviously, I think at this stage, if Cape Town runs/takes over the rail system, when they make it work, it will just prove to the government another reason why Cape Town is working better than the other cities are... ..I think they [national government] are scared of, you know, the DA.”*. *“The bottom line is it’s ANC versus DA”* (Interview 4, 2023). These political rivalries have hindered progress particularly when it comes to the notion of devolution in Cape Town (Interview 2, 2023).

Politics have also had an influence over where the money is channelled. Typically, the DA-run Cape Town metro has been under funded relative to its performance (Interview 1, 2023). Before the total collapse of passenger rail, the city of Cape Town had the largest train ridership in the country (Interview 1, 2023), this statement is supported by Hishaam Emeran (PRASA CEO) in a Cape Talk interview (Cape Talk, 2023). This, however, was not used by PRASA as an argument to decide where money should have been invested (Interview 1, 2023). Rather money prioritised for use in metropolitan areas that are not DA run. This is a characteristic of South African politics that Cape Town struggles with, not only with respect to rail.

Furthermore, leadership has been inconsistent and has hindered meaningful progress and alignment with policy. During quarterly meetings with PRASA and the CoCT, they had such high turnover that at each successive meeting they would have a change of staff and the CoCT officials would need to be re-briefed on the new structure within PRASA (Interview 1, 2023). This made continuity of decisions difficult and removed any sort of accountability within PRASA and may have been due to corruption hiding measures. Van Der Walt had a similar experience of leadership continuity during his time at PRASA stating *"The boards? There was no continuity with boards"* (Interview 3, 2023). Herron (interview 2, 2023), states that *"there were 8 or 9 Ministers of transport since the National Land Transport Act was implemented and none of them have either fully understood it or fully embraced it."*, owing to his belief that politics and poor decision making have stood in the way of the transport legislation being implemented as it should be and preventing proper progress in transport development in the country. Ahmad (Interview 4, 2023) argues that for progress to be made, there needs to be leadership, political support and continuity of planning that extends beyond terms in office.

The relevant policy for rail transport, as has been highlighted in the previous chapter, is perfectly clear in its objectives and vision for rail transport and its important role within South Africa. The policy outlines the issues and provides achievable goals and objectives for PRASA and the rail industry. What is evident from the policy review is that there has been a disastrous lack of proper implementation of these policies as can be seen by the continued decline of rail, lack of investment, lack of innovation and mismanagement of the rail system.

Dries Van Der Walt (Interview 3, 2023), suggests that the 2006 national rail plan that he worked on was seen by the national government as a good plan that was going to work, and as a result opened up plentiful funding to PRASA. However, this plan, as well as subsequent plans, simply were never implemented (Interview 3, 2023). These plans were aimed at fixing rail and were well developed with consultation with local authorities, yet nothing ever came of it. The funding that was made available as a result of these plans was a catalyst to corruption within PRASA (Interview 3, 2023). A culture of starting projects and not following through tended to be the attitude, which would result in incomplete infrastructure which would be left to deteriorate or become subject to vandalism, resulting in the need for further investment to repair down the line when projects were started up once again (Interview 3, 2023). Dries Van Der Walt (interview 3, 2023) argues that we would have been far down the path towards having a fully functioning system that works by now if money had not been wasted and stolen and if the plans had been properly followed through on. If PRASA had implemented the rail plans as they were intended, the pressure placed on PRASA for the devolution of rail may not have ended up being as strong as it is today (Interview 3, 2023).

6.2.2 Lack of Investment has led to a broken system

If one thing is clear for policy that relates to rail in South Africa, it is that a key issue that has been identified is a major lack of investment into infrastructure and rolling stock. Almost every transport related document carries the words “The rail system has suffered from underinvestment for years.”. Under investment is mentioned time and time again and has been an ongoing characteristic of PRASA’s management of rail for decades. This lack of investment has resulted in ageing infrastructure that has not been maintained which now requires high capital expenditure to fix (Republic of South Africa, 2022). Secondly, a lack of investment into rolling stock and capacity building functions has resulted in massive shortfalls with respect to service quality and capacity, with an insufficient number of train sets to meet demand (Republic of South Africa, 2022) (Interview 2, 2023). This means that funding has become a significant barrier to improving the rail network not only in Cape Town but nationwide, with a need to revitalise signalling infrastructure (Interview 3, 2023), rebuild entire stations (Interview 3, 2023) (Interview 4, 2023), and invest in highly cost prohibitive rolling stock (Interview 2, 2023).

Van Der Walt (Interview 3, 2023) highlighted that the lack of investment has not necessarily been a result of underfunding by the DoT but that funds have been poorly managed and disastrously wasted by PRASA. There were and still are far too many people in PRASA with too much redundancy (Interview 3, 2023). Van Der Walt said that the salary cost within PRASA was in excess of 65/68% of the total cost (Interview 3, 2023). That’s just personnel cost and half of them are not doing their job (Interview 3, 2023). He further argued that with central organisation such as PRASA, a lot of that money that goes into the cost of personnel, goes into central functions that don't mean a thing for Cape Town (Interview 3, 2023) and that the decision makers don't have any sort of accountability the City of Cape Town. The money that could have otherwise been used for true improvement of the rail network in areas with the most need is used inefficiently and does not see itself go towards investment.

Again, a lack of investment has been made worse with PRASA’s tendency to start projects without the necessary follow through, which results in unfinished infrastructure that gets left to become vandalised, only to require more funds to be repaired, in turn wasting money (Interview 3, 2023).

6.2.3 Ineffectiveness of Cape Town’s Passenger rail as a national function

Devolution or transferring of the power to govern rail to the Cape Town municipal government is an idea that has been around for decades and is something that the CoCT has been wanting for decades (Interview 3, 2023) (Interview 4, 2023). The idea to devolve responsibility for the provision of rail from the national sphere of government to the municipal sphere in Cape Town is not new. However, with an ever-degrading rail service has reassured Cape Town’s view that rail would be best managed by a local authority. When asked the question of whether devolution would be beneficial, the answer was unanimous across all of the interview participants. Ultimately if PRASA had been doing a good job and rail were functioning and

operating effectively, there likely would be no debate (Interview 4, 2023), this however, is not the case.

Devolution seems to be the obvious next step for getting the Cape Town rail system not only working, but efficient, effective and integrated with the other modes of transport found in the city. The legislation and policy frameworks are also crystal clear in the fact that devolution is an option within the transport legislation, in cases where services provided by PRASA are not sufficient (DoT, 2009). Furthermore, the recent white paper on rail policy argues that metropolitan rail systems should be a local function as this is the norm internationally and a local authority is best suited to catering for local transport systems and integration (Republic of South Africa, 2022). *“Unless the city takes over the entire system and nothing really going to change”*, stated Van Der Walt whilst describing his stance on devolution (Interview 3, 2023).

“When you're running a system that is a national system and has national dependencies, then by all means run it nationally. But the passenger rail system in Cape Town has no relationship to the passenger rail system in Soweto.” (Interview 1, 2023). The national rail system can operate completely independently from the Cape Town metro. Furthermore, Catherine Stone argues that certain services should be inherently accountable to the people they serve, and passenger rail is one of these essential services (Interview 1, 2023). Often decisions for Cape Town were made in head offices on the other side of the country, by people who were not in touch with local realities and who were unfamiliar with the Cape Town system (Interview 1, 2023). Herron, formerly involved with the TDA has been a long-standing advocate for devolution and actively worked on devolution when he was in charge of transport. Dries Van Der Walt (Interview 3, 2023), argues that the benefits and arguments for devolution outweigh the arguments against it and that *“Unless the city takes over the entire system, nothing really going to change.”*

The main rhetoric from PRASA and the national government is that the City of Cape Town does not have the expertise to run the rail system, and that handing it over to the metro would be disastrous. The mayor of Cape Town Gordon Hill Lewis states that rail is already a disaster under its current governance (eNCA, 2023). Van Der Walt (interview 3, 2023), states that there has been ongoing “brain drain” in PRASA, and an exodus of skills (Interview 4, 2023), which has left PRASA as a shadow of its former self without the necessary skills to run the rail network at the level it needs to be operating at. Van Der Walt (Interview 3, 2023) argues PRASA themselves no longer have the skills. Whilst the City of Cape Town may in fact not have the skills necessary for running the rail system, skills can be bought in and contracted to consultants with the skills and experience of operating rail systems (Interview 3, 2023). Peter Ahmad (Interview 4, 2023) said that PRASA has demonstrated its inability and incompetence over the years and has fallen into the same problems of state capture, corruption, brain drain and loss of capacity as ESKOM, SA Airways and other parastatals.

An aspect of the devolution process that is not covered in rail policy and transport policy, is what exactly would be devolved if rail devolution were to happen. All four interviewees had the same suggestion and similar arguments for what would be the best option. Devolution could happen in a number of ways, for instance, the operations could be devolved leaving infrastructure to be governed by PRASA, similarly to the UK. Devolution could also involve authority over operations, infrastructure, signalling and rolling stock being separated individually (Interview 3, 2023). Devolution of the entire system, however, is what has been

suggested by all interviewees as the only viable option for the revitalisation of rail in Cape Town. *"It would be very difficult to [run the system] because if you don't [devolve everything], if you don't do that, you just gonna be at the mercy of PRASA"* (Interview 3, 2023). Herron (interview 2, 2023) states that his view when working at the TDA was that City would have authority over rail and ownership of the rail infrastructure, the stations, the signalling and the tracks, and thus the city would have the authority to contract operators to operate on the network. He suggests that being able to operate and contract operations on the rail network is dependent on owning the infrastructure (Interview 2, 2023). Stone (Interview 1, 2023) states *"the two [infrastructure and operations] are so interdependent. If the infrastructure is not maintained which it hasn't been, then you can't operate the system."*

Current structures and transport fragmentation do not allow for transport integration. Currently there is no integration of transport modes or land use planning (Interview 1, 2023). *"That's again why devolution would be better [for integration], because you can only do this at a very local scale with the responsibility of some sort of level of authority"* (Interview 1, 2023).

6.2.4 Considerations if rail is to be devolved

Cost is an important factor to consider, the mayor of Cape Town Gordon Hill Lewis states that the city would require a proportionate amount of the subsidy that is paid by the national department of transport to PRASA, thus the subsidy would need to be included in the devolution negotiations (Newsroom Afrika, 2023). This is supported by Van Der Walt (Interview 3, 2023), who suggests that there would need to be negotiations around what portion of PRASA's subsidy Cape Town receives from the DoT.

The MyCiti bus service operates at recurring deficits (Macauley, 2018), with losses in the range of R400-500 million, this is a sizable portion of the Cities R11 Billion budget for 2023/24 (CoCT, 2023). This does not include the R1.1 billion expenditure planned for 2023/24 for the MyCiti expansion plan, which leaves the city with only R800 million for all of its other mobility expenditure (CoCT, 2023). The MyCiti BRT system is already a major financial burden for the city, and it has been said that the MyCiti system is a more cost-effective option to rail (MyCiti, 2015). Adding on the entire metro rail network to the City's budget would be a huge financial undertaking, particularly when one understands the vast costs involved with retrofitting the outdated, unreliable and obsolete ticketing and signalling systems (Interview 3, 2023). Ahmad (Interview 4, 2023) suggests that there would need to be careful consideration around funding and that a carefully crafted business plan would be essential for the City of Cape Town. He suggests that the BRT system is already so expensive, adding rail to the mix could have the potential to bankrupt the city if not handled correctly (Interview 4, 2023). The CITP does not explicitly state that there is a need for rail funding, but it recognises that funding for public transport in Cape Town is currently inadequate and is in urgent need (CoCT, 2023). Devolving rail could be adding more and more to a city trying to juggle too many things (Interview 4, 2023). The CITP recognises that the Urban Mobility Directorate does not oversee rail services and therefore, there is no capital programme (CoCT, 2023) For the devolution of rail, funding would likely need to come from sources outside of just the annual CoCT budget. Part of the mayor's 10-year infrastructure plan includes arranging private sector investment into rail once

devolution has taken place (CBN, 2023). Ahmad suggests that the city of Cape Town would need to have a sound business model and operate rail in a similar way in which a private entity might operate if it is to be financially viable (Interview 4, 2023). Gordon Hill Lewis believes that the City of Cape Town would require a significant subsidy for rail due to the massive costs involved (Newzroom Afrika, 2023). Lorenzo Davids, the CEO of the Development Impact Fund states that while he supports the devolution initiatives, he has concerns over who is doing the rail feasibility study for the CoCT as it would have a deep resulting impact on the future of rail in the city (Newzroom Afrika, 2022).

Land use and transport planning cannot be separated and are intrinsically linked. This can be seen by the fact that the idea of intensifying land use around railway stations hinges on improvements to the rail system and that rail decline has affected transit-oriented development and the nature of development near rail stations over the last decade (CoCT, 2023). Problems caused by the rail decline aside, the city of Cape Town, according to Ahmad (Interview 4, 2023), has failed to deliver land assembly plans despite numerous calls for plans to be drawn up. Land assembly in areas of strategic importance to the city's spatial vision, such as station precincts, would allow the city to better align its urban environment with its transport planning, regardless of rail decline and would be a great tool to have, yet has failed to be produced (Interview 4, 2023). Public transportation is consistently presented as the connecting thread of the City's urban fabric as such public transportation has emerged as a tangible mechanism with which the city is transforming Cape Town's built environment. Whilst it is likely that the CoCT would be able to offer a better rail service than is currently offered by PRASA, for true spatial transformation and social integration aimed at reversing the scars left behind by apartheid, there would need to be a full commitment to supporting the cities policy of TOD with effective land use planning that supports the use of rail as the primary mode of transport. - For example, mandating certain densities around stations (Macauley, 2018). Ahmad (Interview 4, 2023) argues that the city's spatial planning programs and projects have been far from perfect and that he has not been convinced that the issues he has been raising over the years have been adequately addressed. This is quite clearly expressed in some of the shortcomings of the MiCiti programme. The argument here is that if the city still hasn't got its MyCiti BRT right, how must it be expected to get something as complex and financially demanding as the rail system right?

6.2.5 Ticketing and Security

Ticketing and Security are two vitally important aspects of Cape Town's rail system that PRASA has gotten woefully wrong. Revenue collection from ticket fares has been virtually impossible due to an outdated ticketing system. PRASA has lost millions on ticket revenue over the years due to no one paying (Interview 3, 2023). The majority of stations have no barriers preventing a person who has not paid from accessing the platform and as a result many people take advantage of this and ride free. Ticketing is cash only and must be paid to a teller at the station, there are no online sales and no automatic ticket vendors at the stations. Furthermore, the ticket is only valid for the train, there is no ticket that allows for the use of multiple modes of transport as a result of the fragmentation of transport in Cape Town. Herron has been an advocate for integration, highlighting the need for a single ticket making transport

more accessible and easier to use (Interview 2, 2023). Again however, it boils down to a matter of cost, as revamping the ticketing system involves expensive technology that needs to be rolled out on a large scale.

According to Van Der Walt (Interview 3, 2023), corruption had a hand to play in the security issues, with many vested interests in security contracts and contracts being renewed without proper approval. PRASA got rid of the railway police that once existed and in 2020 security contracts were cancelled all together (GroundUp, 2023), which left infrastructure open to vandalism and theft.

Security not only affects the state of rail infrastructure and operations, it is also a major factor that commuters consider when weighing their options between rail or other forms of public transport. Ahmad (Interview 4, 2023) stated that he wouldn't go to some of the stations even if he were paid because of how dangerous the urban environment is due to a lack of security, arguing that they are health hazards. Whilst getting train operations back up and running is clearly a necessity, there also needs to be equal support in fixing the urban environment that supports the use of trains if commuters are to be expected to choose trains over MBT's. If stations and interchanges are a place where nobody feels safe or where people fear for their wellbeing, the customers cannot be expected to choose that form of transport (Interview 4, 2023). *"The system it's not just the trains. You can't underestimate the critical importance of the quality, safety, operating, and maintenance of the station precincts."* (Interview 1, 2023).

6.2.6 Integrating Taxis and Busses with Rail

There is no doubt minibus taxis have taken up the slack created by the dwindling rail sector. While MyCiti and Golden Arrow have indeed helped fill the gap left by the rail sector, they are just a fraction of the capacity that MTB's fulfil (SABC News, 2023). Without rail functioning as a mass people mover, MBT's play a vitally important function in transporting the majority of Cape Town's residents (SABC News, 2023). As a result, the taxi industry holds a substantial influence over the city that cannot be overlooked. This was highlighted by the most recent taxi strike in August 2023 which resulted in the city coming to a standstill as residents were unable to get to work, particularly those without the means of private transport. The taxi industry has benefited from PRASA's failure for years and has a vested interest in rail not succeeding as it creates a better market for taxi operations (Newzroom Afrika, 2023). Trains and rail infrastructure has been subject to widespread vandalism in recent years which has compounded the problems inflicted by PRASA's mismanagement. During the prosecution of train arsonists in 2020, it was revealed that they were paid for placing trains out of service as it was favourable for the taxi industry (IOL, 2022).

When the MyCiti BRT system was implemented, to avoid similar malicious activity, the taxi industry was given the opportunity to become shareholders of MyCiti. At the same time that the rail system has been critically vandalised the MyCiti has largely been left alone and has been void of the same sort of destruction (Newzroom Afrika, 2023). Gordon Hill-Lewis argues that this is likely due to the taxi industry having an interest in MyCiti's success. Hill-Lewis argues that evidence of this can be seen by the fact that during the August 2023 taxi strikes tens of Golden Arrow buses and private vehicles were burnt while not one MyCiti bus was

damaged (Newzroom Afrika, 2023). Hill-Lewis further suggests that there would need to be a similar arrangement between the rail system and the taxi associations (Newzroom Afrika, 2023).

As Prasa Group CEO, Hishaam Emeran, describes it, “it is a matter of integrated transport” (Cape Talk, 2023). It is important to acknowledge and not understate the importance non-rail public transport in the city, specifically the taxi industry. However, it is also true that rail is the backbone of the city’s transport network, as Emeran describes it, “Cape Town is a rail city” (Cape Talk, 2023). Thus, taxi and bus services need to be transitioned towards a role that compliments and feeds into the rail system (Cape Talk, 2023).

6.3 Discussion

6.3.1 Leadership & Politics

What’s interesting about rail in Cape Town is that the policy environment isn’t particularly confusing or contradictory. The rail policy and NLTA are clear that devolution can happen where metros are capable and when service provision by PRASA is inadequate (Republic of South Africa, 2022). A large aspect of the issue is simply a matter of political will. The leaders in the national government do not want to lose control over such a strategically important piece of infrastructure which has incredibly deep reaching implications for development and the economy. What was clearly apparent from the findings was that the mechanisms that allow for institutional change, which have the potential to improve rail exist, yet implementation of policy and legislation has been completely non-existent.

One of the reasons why it is so difficult for the Cape Town municipal government and national government to coordinate with one another on matters such as the devolving of the rail function, is to do with political tension between two opposing political parties, the DA and ANC. The findings and literature in chapter 3 such as Wilkinson (2010) are clear on the fact that the tensions between the DA run CoCT and ANC run national government have hindered progress. The lack of solid decision making for political reasons has resulted in institutional paralysis when it comes to making big commitments for the future of rail development in the country. As the United Nations (2013:54) writes “The challenges of urban mobility systems can only be addressed if they are seen as political challenges, requiring political consultation, decision and implementation, as opposed to seeing them as purely technical challenges requiring the ‘right’ technical solutions. “. This speaks to the fact that there has been such poor political support in addressing the institutional issues of rail, often being cited by the interview participants as a result of PRASA being a hotbed for corruption. In Cape Town, this has resulted in years of no action being taken despite calls and proposals for the devolution of rail as PRASA has shown its inability to arrest the decline and failure of rail transit. The first step towards addressing this political challenge as argued by Babalik-Sutcliffe (2002), is for the planning of transport to be better institutionally aligned. As mentioned before, this is currently far from the case in Cape Town, where land use and transport planning are a local function whilst rail operations and rail planning are still held at a national level.

Devolution would allow rail to be somewhat removed from national leadership and a number of political constraints that currently exist due to rail's centralised institutional structure. As mentioned by Estache (1995), devolution would create political accountability, something that PRASA lacks as it operates nationwide and is both geographically and politically removed from many of the areas it is responsible for. This aligns with findings that included the notion that transport systems should be accountable to the people they serve (Interview 1, 2023). In 2023 when PRASA refused to accept responsibility for the purchasing of land for the relocation of shack dwellers on its 10 meter rail reserve on Cape Town's Northern line, insisting that the responsibility should lie with the Cape Town administration (eNCA, 2023), this highlights the sort of avoidance of accountability and political blaming that has been occurring around the rail problem in Cape Town.

Devolution to lower spheres of government would allow Cape Town to direct the development of rail and thus transport, as well as transport integration in the way that better aligns with the MSDF and CITP, which could allow for change, whilst being free of some of the political barriers that exist could allow for faster action. Devolution is not the panacea to all of Cape Town's transport problems. However, it would allow the city more freedom to align its transport modes with the goal of transport integration. Brett Herron, during his time at TDA envisioned a single ticket that could be used across all transport modes in the city (Interview 2, 2023). This is currently not possible due to the fragmentation of public transport in Cape Town. Having the planning and operational authority over the rail system would allow Cape Town the possibility to integrate its existing BRT system with the rail network and as they would both be owned by the city, integrated ticketing could more easily be achieved. Having ownership and control over the rail system would also allow the city to work with the taxi industry to better coordinate services for the benefit of commuters. Ownership over rail would give the CoCT the authority and thus the ability to work with the taxi industry to find ways in which they can coexist, similarly to the MyCiti BRT.

The case examples of Medellin and Transantiago in chapter 2 highlight the need for political continuity and stability. In the Medellin case, three successive mayors who shared a common vision for the metro-rail project has been attributed to some of the success, while in Transantiago, much of the failure of the project has been directed towards the new transport minister who undermined the project just a year before its planned implementation. This points towards the need for a strong vision and plan for transport systems, and the need for these plans to be implemented through a unified vision beyond a single term of office.

6.3.2 Funding

As stated by Pojani & Stead (2018), "There is often no shortage of transport plans for cities in countries in the Global South. However, the lack of funding as well as political will often severely limits their implementation.", this is no different in the City of Cape Town and will likely be one of the main constraints if rail is to be devolved.

Public transit systems are deemed a necessity and a public good and therefore are more often than not run at a deficit, this means that they require a subsidy to keep them financially sustainable (Ubbels & Nijkamp, 2002). The rail system in Cape Town serves some of the most financially vulnerable communities in the city, thus the CoCT cannot significantly raise the prices to fund rail services, without significantly disadvantaging the most vulnerable commuters. A devolved rail system will almost certainly be operating at a deficit, just like the MyCiti system. As mentioned before, Cape Town, already pours a large portion of its budget into the MyCiti system, a system that was designed to be a cheaper alternative to rail. The rail system would require a significant subsidy from the national Department of Transport if it is to be financially viable as it is not feasible for Cape Town to run the rail system without financial assistance (Interview 1, 2023) (Interview 3, 2023) (Interview 4, 2023). Currently there are no guidelines or policy that states how a devolved rail system would be subsidised. At the moment, PRASA is subsidised by the national Department of Transport, therefore a portion of the rail subsidy would need to be devolved along with the physical assets or a new system of subsidising municipal rail systems would need to be implemented. Due to the high cost of rail, it is likely that the City of Cape Town would need to explore alternative forms of financing such as land-based financing, something not currently taken advantage of in Cape Town (Interview 2, 2023) (Maccauley, 2018), yet is something that would be beneficial to be taken advantage of given Cape Town's TOD policy. As mentioned in chapter 2, it is worth noting that LBF is most effective, and its results can be maximised when done at a local level according to Berrisford et al (2018).

A lack of investment into maintaining and developing rail infrastructure has been identified both by policy, reports and by primary data collection. This is an important aspect of the rail problem that is relevant for Cape Town if devolution is to take place. As spoken about in the results section, cost is a major constraining factor for transport systems and among the most expensive, are rail systems (Tirachini et al, 2010). If rail is handed to the City of Cape Town and they are unable to financially afford it, many of the problems that currently exist such as poorly maintained infrastructure, a lack of rolling stock, an outdated ticketing system, and lacklustre security, are likely to continue. This again highlights the need for the City of Cape Town's feasibility study to be undertaken without political agenda and bias and subsequently for a strong business plan to be crafted that will account for the massive investment that will be required for revitalising the rail system.

6.3.3 Land Use

Cape Town is often credited with being the best run metro in the country. While there may be some truth to this, one could argue this praise exists within the context of a country where the basics are often not met. If spatial transformation is to be the end goal of a devolved rail system, much more than just the basics will need to be gotten right.

Pojani & Stead (2018) argue that limited planning capacity, and a lack of coordination between land use and transport policymaking prevails in many global south cities. Peter Ahmad (Interview 4, 2023) raised a concern that I had not foreseen. From his experience as a planner, he was frustrated and concerned with the fact that there was a lack of holistic thinking from

different role players within the city and there was a compartmentalised nature to the implementation of plans. Often different departments working a project would view their role in isolation. As an example, the engineers might have had the view that their responsibility only went as far as a certain servitude. This sort of thinking failed to effectively contribute to the overall spatial vision of the city and instead resulted in projects that were disjointed from the urban fabric they existed within (Interview 4, 2023). Ahmad argues that whilst everyone is working off of the same plan, the way in which different departments act upon or interpret spatial plans is not aligned (Interview 4, 2023). Thus, there needs to be a better unified understanding of the spatial vision that will allow for a better alignment between departments working on spatial development. For rail this is important as the land use component cannot be thought of in isolation from the transport aspect of rail.

Rail ownership being held at the national level of government by PRASA, has made integrating land use with the spatial development mandate of transit-oriented development that is set out by the Cape Town municipal SDF, rather difficult. This is an important aspect of the rationale for the devolution of rail, as improving the passenger rail system in Cape Town will not only improve the quality of life and accessibility for many residents' city wide, but it can also play an important role in spatial transformation. The literature and Medellin case study in chapter 2 have discussed the inherent link between land use and transport as well as the benefits of better aligning these two functions of planning. Due to the fact that rail and its related planning is done at a national level, while land use is a municipal function, it has made integrating these two functions near impossible (Interview 1, 2023). CoCT planners have had to design station precincts around the existing stations, without the ability to make any changes to the PRASA owned land and assets. As a result, the rail system and its related infrastructure such as stations, which are important nodes for the city, appear isolated and do not fit into the surrounding urban fabric and vice-versa.



Figure 11: Satellite image of Khayelitsha Station and surrounds (Including Khayelitsha Mall) (Google Earth, 2023)

In the overhead view of Khayelitsha station above, the rail line cuts through the landscape, dividing the neighbourhood of Village 1, to the left, from the Khayelitsha mall on the right. This node was chosen as Khayelitsha is one of the largest suburbs by population and is home to many underprivileged communities. The Golden Arrow bus stops (blue icons on the left) are not locationally integrated with the station, and commuters making an intermodal change must walk across a desolate open area. A similar story is evident on the right-hand side, where the Khayelitsha mall appears placed upon the landscape with little consideration for how it interacts with the station with its large size and open spaces being unfriendly to the human scale. One can imagine arriving at Khayelitsha station alone at night and having to navigate the large, empty open spaces, with little activity that surround the station, it is unlikely that this is a place any person would want to spend any time in. One of the aspects of the metrocabes that Medellin got right was for the transport interchanges to be areas where educational, housing, cultural and public space infrastructure were located, thus prompting the use of the transit system and making these nodal areas attractive for development (Cordoba, 2015) (Brand & Davila, 2011). If the ultimate goal of improving rail in Cape Town is to achieve spatial transformation and to eliminate mobility related exclusion, then it is essential that Cape Town has the power to align its rail system with its land use policy.

Being able to improve the quality of these areas so that people are more likely to use them, and business owners attracted to locate around them, hinges on improvements to the rail system. Cape Town's development is centred around a transit-oriented approach, meaning that development should take place around a series of transport corridors and nodes. TOD aims to maximise the amount of residential, business and leisure space within walking distance of public transport. It promotes a symbiotic relationship between dense, compact urban form and public transport use; thus, TOD requires integration between land use and transport planning. This is difficult or impossible to achieve when transit, in this case rail, is not a municipal function (Interview 2, 2023) (Interview 1, 2023).

While there are external constraints experienced by the CoCT in its efforts to align land use with transport, there are still measures the city can take that it has failed to take advantage of (Interview 4, 2023). For example, the City of Cape Town has never produced a land assembly plan or land assembly strategy (Interview 4, 2023). This would help provide the necessary land rights for integrated development, as urban development projects generally require the assembly of a number of small parcels that are owned by different persons into a larger parcel (Plassmann & Tideman, 2007). A land assembly strategy would help reduce fragmented land ownership around strategic sites that require urban development for achieving effective TOD (Louw, 2008). Ahamad (Interview 4, 2023), argues that the city would need a land assembly strategy that is clear about where to acquire land, where to bank land, and where land should be sold, so that the city can leverage strategically important sites for its spatial goals. Not having this in place makes it difficult for the city to take action around these strategic sites, in this case, rail nodes and corridors.

6.3.4 Technical Hurdles

Fare evasion is highly costly for public transport operators, the Transantiago system in Santiago, Chile recorded an average fare evasion rate of 28% between 2016 and 2018 which they estimate to have cost them over \$1 Million per year (Gonzalez et al, 2019). With a severe lack of investment by PRASA over the years, Cape Town's rail ticketing system has become outdated and is not up to modern standards for a major public transport system. The ticketing system as mentioned in the findings section, the ticketing is cash only and must be paid to a teller at the station, there are no online sales and no automatic ticket vendors at the stations. Many of the stations have platforms that are freely accessible without needing to pass through a pay barrier and as a result the levels of fare evasion are high. This is a huge loss of valuable revenue, that is essential for a system that is in such desperate need of investment. Investing in a new ticketing system and retrofitting a city network of stations however is hugely costly and not a task since it involves expensive technology. This is, however, an aspect of the system that would need to be properly implemented and future-proofed in order to be integrated with the MyCiti ticketing system to achieve the CoCT's goal of an integrated transport network.

The signalling system has been responsible for the constant delays and cancellations as it is out-dated, unreliable and gets vandalised regularly. This would need to be addressed to ensure reliable scheduling and to prevent rail related accidents (Interview 3, 2023), however it is subject to similar cost constraints as the ticketing system as it requires expensive technology and would need to be upgraded across the entire network. Whilst the signalling system is an obvious technical need, there is also a more human reason for its importance. Firstly, signalling is a matter of safety, having an outdated system that is prone to failure is a safety risk and creates a dangerous operating environment for passengers. The general public has also lost its trust in the rail system after years of trains arriving late and being cancelled. This has earned trains a reputation of unreliability and for many is used as a last resort. Getting the signalling system refurbished and replaced with newer more reliable technology is important for improving the safety and reliability of service, which is in turn important for earning the trust of users back.

Security was highlighted in interviews as an important aspect of the rail system that is missing and needs attention. A lack of security in recent years has left the rail system open to vandalism and criminal activity which has further compounded the reliability of rail as cable theft regularly disrupted operations. Furthermore, stations and train carriages are unsafe and have been the site of muggings and other crimes. For the success of rail proper rail security would need to be contracted. This would include rail line patrols to ensure the safety of infrastructure as well as station and carriage security to keep commuters safe and to restore user trust in rail as a safe and reliable and affordable transport option.

6.3.5 Cape Town lacks the necessary preparedness

The mayor of Cape Town and the Mayco member for transport, Rob Quintas have been fairly vocal about the CoCT's intention to run the rail system. However, the cities actions have not

reflected this strong verbal commitment. As it stands, there city is yet to complete its rail feasibility study and there is no clear timeline for when this will be completed, this is an important step towards convincing national government of the merits of devolution (Interview 3, 2023). The City of Cape Town also lacks a clear devolution plan that would account for the offloading process from PRASA and the phased implementation of city run rail. It is clear that the CoCT lacks some of the necessary mechanisms and expertise that will be vital for the acquisition of rail, despite its statement of a strong commitment to running rail in the metro. Whilst rail is still in the hands of PRASA, the city should commit to expanding its capacity to run rail as well as further developing plans and strategies for rail to be devolved and to be able to work with the national government of transitioning rail from PRASA ownership once the national department of transport has finished work on the national devolution strategy.

Conclusion

This chapter has presented the findings from interviews, policy and press and subsequently provided an analysis of the results in the form of a discussion in relation to the research question as well as in relation to the literature from chapter 2. This chapter, in combination with chapter 5, has identified a wide range of challenges and potential solutions for passenger rail improvement in Cape Town and serves as the basis for the formation of the recommendations that this study produces.

Chapter 7 - Recommendations & Conclusions

Introduction

This chapter concludes the research under study and provides recommendations for revitalising the rail network Cape Town. Section 7.1 provides recommendations aimed at multiple spheres of government aimed at addressing the key challenges and “next steps” identified by the results. Section 7.2 will conclude this study by providing a short summary of the study and briefly responding to the research questions.

7.1 Recommendations & Conclusion

The recommendations were approached by imagining that passenger rail in Cape Town has recently been devolved to the municipal government. The recommendations then, are a depiction of what has been needed to achieve this as well as the necessary measures the City of Cape Town would need to get right in order to begin strengthening the rail system. These recommendations are a response to the main challenges and solutions which were identified by the policy review and results and aim to inform policy makers and practitioners working in the City of Cape Town and national government.

7.1.1 Additions to national rail policy

There is need for the national department of transport to revisit its rail policy and build upon the progress that has been made so far. The White Paper on National Rail policy (2022) has been a turning point in rail policy and has ultimately provided the first coherent policy on rail that the country has been missing for decades. This policy provides a clear stance on devolution and recognises that rail should be devolved to municipal levels in light of PRASA’s failings. An important aspect that is missing from this national rail policy, however, is a clear requirement or determination for how devolved, metropolitan rail systems will be funded and how the national rail subsidy will be shared. It would be impossible for the City of Cape Town to run the rail system without a share of the national subsidy as shown by the results, however, there is no clear mechanism that determines how this should be done. This needs to be made clear in a national policy or legislation by the national government for rail devolution to take place effectively.

7.1.2 Separate municipal transport authority

Covered in chapter 2, the Medellin and Transantiago case studies highlighted the need for consistent political leadership with a shared vision for transport systems. In Medellin, three consecutive mayors of the city shared the same ideals and the same vision for the metrocables which saw its successful implementation and positive spatial change. In the Transantiago case, an unexpected resignation of the transport minister saw a change in leadership who did not share the same vision for the project and ultimately contributed to the unbuckling of the project. For Cape Town, a way to ensure decision making is removed from

the influence of political leadership changes and to ensure a common vision is implemented, could be for the city to make use of a transport authority that is independent from the CoCT and its decision makers are not tied to the 5-year election cycle. It should take an apolitical and business-like stance; this was the case in the Medellin example. A transport authority would also create a unified decision-making body that can address issues such as integrating rail and the MyCiti bus service for example. A transport authority of this nature could be charged with the task of securing the provision of a properly integrated and efficient system of public passenger transport to meet the needs of Cape Town in addition, a local transport authority could be made responsible for the development of new rail infrastructure and which can be aligned with that of the MyCiti expansion plan, having common decision making body would allow for this closer alignment and reducing the current fragmented nature of public transport.

7.1.3 Pre-emptive planning

The devolution of the rail function from a national to a municipal competency in the case of Cape Town, is not something that can happen overnight. Currently the CoCT is working on its own feasibility study, yet once this has been completed there will still need to be a significant number of plans, details and agreements that need to be negotiated and formalised before anything takes place. This would likely be a matter of years. Therefore, the CoCT should be using this time to start acquiring the right people with the skills and experience of working with rail systems pre-emptively to prepare itself. Furthermore, the city of CoCT should begin work on more detailed rail planning to be introduced into the next MSDF cycle (2028). Currently the 2023 Cape Town MSDF highlights the limitations of the cities rail network and integrates a few of the problems, however, there is a lack of the nuanced detail that would be required for the SDF to be successful in aligning its spatial development with rail transit that would be necessary once rail is devolved.

7.1.4 Phased Devolution Plan

As required by the White Paper on National Rail policy, the National DoT needs to develop a devolution strategy in which must be approved to assist devolving functions. Once the devolution strategy has been approved, all urban rail functions such as planning, operations, funding, and maintenance, will be assigned to the municipality in question (Republic of South Africa, 2022). This strategy however likely only accounts for the handing over process and the City of Cape Town would need to develop its own phased devolution plan to outline the necessary timeline for implementing changes and improvements to the municipal rail network. This plan would act in a similar manner to the MyCiti phased expansion plan. A phased devolution plan would need to contain a detailed action plan that addresses all the necessary areas for fixing and improvement, as well as a sound business model that can maintain financial sustainability of the rail operations. Evident from the findings was a lack of maintenance over the years by PRASA which has contributed to the derelict infrastructure present today. It would be advisable to incorporate maintenance into a phased devolution plan to prioritise maintenance and to factor the cost implications into the business plan.

7.1.5 Rail security

Evident in the findings was that Metrorail (the Western Cape operator under PRASA), failed to contract sufficient security both for its rail infrastructure and for the security of its users. This led to regular vandalism and led to a reputation of an unsafe transport option. Key to operating a rail system that is reliable and safe for users would be acquiring a competent security contractor and having a security component that protects rail lines and rolling stock and a unit assigned to ensuring safe stations and carriages.

7.1.6 Land-based financing & Land assembly plans

Currently the City of Cape Town does not make adequate use of land-based financing for its MyCiti BRT system and currently only uses property taxes to aid funding. Macauley (2018) identified a number of gaps where land-based financing could be used to fund the MyCiti project. Furthermore, Macauley (2018) identified that there is no land-based financial strategy. A land-based financing strategy or land value capture strategy could help the city better plan for its future expenses and help to aid in the funding of the costly MyCiti system and in the context of this research an expensive devolved rail system. Having a clear land-based financing plan could help align transport and land-use planners with a common goal and plan to work from.

The City of Cape Town currently lacks a land assembly plan or strategy. Land assembly is important as it would help guide the provision of the necessary land rights for integrated development, as urban development projects generally require the assembly of a number of small parcels that are owned by different persons into a larger parcel (Plassmann & Tideman, 2007). A land assembly strategy would help to identify where to acquire land, where to bank land, and where land should be sold, so that the city can leverage strategically important sites for transit-oriented development. This is particularly relevant where the numerous stations act as important nodal areas.

7.1.7 Table summary

Intervention	Action Required	Key Actors	Intended Impact
Additions to national rail policy	additional details around rail financing and funding	National DoT	More clear and useable policy
Separate municipal transport authority	Formation of an independent public transport authority	City of Cape Town	Unified decision making and better transport integration. More stable leadership and capacity building

Pre-emptive planning	Human resources acquisition and developing strategic plans	City of Cape Town's mobility directorate	Building the necessary skills and plans that will be necessary for the devolution of rail services
Phased devolution plan	A devolution plan by the CoCT that will provide a roadmap for the city to take over the rail system	City of Cape Town	A smooth and prepared devolution process. A roadmap of goals and milestones that will need to be met for rail revitalisation
Rail Security	Contracting security services for both infrastructure and for commuters	PRASA	Protection of assets and commuters as well as creating a safe transport mode that people want to use
LBF and LAP	Research and framework development for LBF and LAP's	City of Cape Town	To aid in the development of rail (and other public transport) by taking advantage of LBF and land assembly

7.2 Conclusion

7.2.1 Summary of research and brief response to subsidiary questions

A well-established rail network is of strategic importance to a city and provides a cost effective and efficient means of increasing its transportation capabilities. Cape Town's urban form which could be characterised by urban sprawl, necessitates an effective mass transit mode of transit such as rail. Cape Town's rail system, however, has seen major decline in the past decade to the point where it has largely collapsed and is critically insufficient for commuter needs. This disproportionately affects the poorest of communities who live on the periphery, furthest away from opportunity, which tends to be centralised around the CBD. Rail also tends to be the least expensive commuter option, particularly when compared with the minibus taxis that dominate the transport landscape in South African cities. Thus, without a functioning rail system in Cape Town, residents are forced to turn to more expensive alternative forms of transport. The City of Cape Town, however, is largely powerless to make improvements to the rail infrastructure and operations and it is owned by PRASA, South Africa's national passenger rail company. Furthermore, rail plays a vital role in the CoCT's spatial development strategies as the primary development focus is centred around

densification along transit corridors or transit-oriented development. The rail corridors to this extent make up the backbone of the city's shape and structure. Without being able to intervene in improving rail, the city is unable to effectively follow through on its spatial development strategies and link its land use planning with transport effectively.

Therefore, this study aimed to investigate the challenges passenger rail in Cape Town has faced which have created an environment of insufficient rail transport for the needs of the city, and furthermore it aimed to understand the spatial and institutional factors which will need to be addressed in order to overcome this, by questioning which sphere of government is best suited to the task. This was achieved through both primary and secondary data collection by collecting data from several interviews conducted by the researcher, as well as a number of secondary interviews conducted with city officials by radio and news outlets which were available online. Press articles and reports were also used and analysed. Additionally, a policy review was conducted focused on South African policy that pertains to rail transport from all three spheres of government.

The subsidiary research questions are as follows:

- What are the competencies of each sphere of government, in relation to public transportation and how could that contribute to improved rail delivery?
- How have political dynamics had an effect on transport planning and the running of rail in Cape Town, and what are the implications in relation to the future of rail?
- What role does rail play in the meeting of Cape Town's spatial development plans and visions?
- What lessons can be learnt from other modes of transport, such as the MyCiti BRT service?
- What has been the role played by PRASA in relation to rail in Cape Town?
- Is devolution of rail to local government, in the case of the City of Cape Town, viable?

In short, from the legislation, policy and expert opinions used to collect data for this research, it is evident that PRASA has failed to provide an effective rail service in many of the large metropolitan areas across South Africa, in Cape Town the story is no different. There was a strong view across all 4 interviews, that the City of Cape Town is better situated for providing rail services and rail planning within the Cape Town metropolitan area. These views are supported by South African transport and rail policy.

Devolving rail to a municipal function in Cape Town has been the topic of discussion for many years, it is not a new discussion. From the interviews it was evident that politics have had a hand to play in delaying and preventing the rail function in Cape Town from being devolved. Simply put, the ANC led national government does not want to give up ownership of the rail function in Cape Town, which is administered by the opposing DA political party.

Rail is a vital component of Cape Town's physical structure and the city's spatial development direction hinges on a functioning rail system to act as the backbone for both its transport and spatial form. Without ownership or control over such an integral part of the city's infrastructure, it is difficult for the city to execute effective spatial and transport planning. This is further compounded by the fact that rail is performing so poorly under PRASA ownership and is grossly underutilised as a result. PRASA has failed to maintain its vital infrastructure and rolling stock which has resulted in an old system that is regularly breaking down and requires regular and expensive maintenance and repairs to keep trains running. Furthermore, very little investment has gone into upgrading infrastructure and equipment, particularly the ticketing and signalling systems, which has led to large inefficiencies in operation. PRASA has in recent years, neglected the important security aspect for the Cape Town rail system, which has resulted in vandalism and theft that has ruined expensive infrastructure such as stations, rolling stock and cables and has exacerbated the unreliability of trains in Cape Town.

Whilst there is agreement that devolving rail authority to the local sphere of government would be the best-case scenario for addressing the rail issue, there are a number of reasons to be cautious and not rush into devolving the rail function without proper planning and thought. The sheer cost of running a rail system is a major concern. Currently the city's MyCiti BRT system and its expansion plan is costing the city a fortune, which will never be recouped. A rail system is far more expensive than a BRT system which was rationalised in Cape Town as a more affordable alternative. Currently the city does not take advantage of land-based financing to help cover some of the costs of its MyCiti program. This is something that needs to be looked at more closely, even more so when considering the devolution of rail and the large costs involved with its operation and infrastructure. There are significant opportunities identified by Macauley (2018) for land-based financing, the city should be trialling different land-based financing options with the MyCiti program to learn and see how LBF can be used effectively for both MyCiti and rail in the future. The City of Cape Town has also failed to produce land assembly plans or strategies, which are necessary for the city to leverage strategically important sites for transit-oriented development and achieve its spatial development goals. This will be particularly important for improving station precincts along the rail corridors to promote the use of rail and to develop functioning nodes that attract economic and social activity.

There is little doubt that the City of Cape Town would likely run the metropolitan rail system better than PRASA has done. However, the importance of rail goes beyond just having trains running a bit better. The goal for the devolution of rail should be to unlock a tool for true spatial change in the city. For this to be achieved, the city will need to be organised, with the right people, up to the job of improving rail and integrating its planning with well utilised land use that supports the use of rail and urban upgrading of the areas it serves as well as committing to integrating different transport modes. Furthermore, the city would need a carefully considered business plan that ensures the financial sustainability of rail and a well-crafted devolution plan that ensures the right issues are addressed and limited money is not wasted. Lastly, this current period in which devolution discussions are ongoing and devolution plans are being initialised should be seen as valuable time in which the city can prepare, invest and plan for the necessary elements and technical hurdles that will be essential for the success of a devolved metropolitan passenger rail system.

7.2.2 Areas in need of further research

This short section simply outlines relevant paths for future research relating to this dissertation. The first is relevant for better understanding how public transport can be enhanced through different LBF options and how they can be used whilst the second path of research focuses on freight rail, a strategically important infrastructural asset which is, like passenger rail, not being managed effectively in South Africa.

Tools for positively leveraging important spatial locations.

Land assembly and Land-based financing have been identified as important tools for supporting the development of rail (and other urban infrastructure), yet the City of Cape Town currently does not make use of these tools. Further research into identifying where and how these tools can be used and how to develop the frameworks from which to apply them is an acutely relevant topic not only in Cape Town but in all metros nationwide.

Re-Vitalising Freight Rail in South Africa

Rail is a strategically important asset and can have major positive benefit for the country's economy if it were up to the correct standards and functioning effectively (Republic of South Africa, 2022). Supporting a switch from transporting freight from road and air to rail also has a number of other benefits such as aiding in the greening our economy, less demand for fuel, less need for road maintenance and so on. Currently Transnet the owner and operator of freight rail in South Africa is in a similarly poor state to that of PRASA, therefore there is an opportunity to research how freight rail could be re-vitalised, particularly with consideration to how freight rail could be aligned with regional economic development in South Africa.

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Figure 1 - Seth Pipikin. 2007. Image: Centro de la ciudad de Medellín. Colombia.

Figure 2 - Thomas Hobbs, 2011. Barrio Santodomingo Medellin. Flickr Images.

Figure 3 - Mammon, N., 2005, July. Cape Town 2025: urban form and infrastructure. In *Cape Town 2025 Conference, City of Cape Town and Isandla Institute* (pp. 14-15).

Figure 4 - Davies, R.J., 1981. The spatial formation of the South African city. *GeoJournal*, 2, pp.59-72.

Figure 5 - City of Cape Town, 2018. Municipal Spatial Development Framework.

Figure 6 – Adapted from: Wilkinson, P., 2010. Incorporating informal operations in public transport system transformation: the case of Cape Town, South Africa. *urbe. Revista Brasileira de Gestão Urbana*, 2(1), pp.85-95. & City of Cape Town, 2018. Municipal Spatial Development Framework.

Figure 7 - City of Cape Town, 2018. Municipal Spatial Development Framework.

Figure 8 - Transport SA, 2008. SA stations. Available at: https://www.sa-transport.co.za/trains/sa_stations/cape_town_interactive_map.html

Figure 9 & 10 - News24, 2022. These 12 graphs show Prasa's disastrous state. (Available at: <https://www.news24.com/fin24/companies/these-12-graphs-show-prasas-disastrous-state-20220921> - Accessed: 08/08/23)

Figure 11 - Google Earth Pro, 2023. Khayelitsha Metrorail Station, -34.047961S, 18.670832E. Accessed: 22/09/2023

Plagiarism Declaration

I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.

I have used the Harvard convention for citation and referencing. Each contribution to, and quotation in, this project from the work(s) of other people has been attributed and has been cited and referenced.

This project is my own work.

I have not allowed and will not allow anyone to copy my work with the intention of passing it off as his or her own work.

Signed by candidate

Signature:

Date: October 2023

Appendix A: Ethics Approval Form



2023/06/29

EBE/00274/2023

RE: Research Ethics Committee Project Approval Letter

Dear Warwick Wallace,

Your application for ethics review of your project titled

The Future of Passenger Rail in Cape Town

-

has been reviewed and evaluated by the

Engineering & Built Environment Committee.

You may proceed with your research project titled:

The Future of Passenger Rail in Cape Town

-

Please note that should:

- (i) any serious or adverse effects to participants occur and/or,
- (ii) aspect(s) of your current project change and/or
- (iii) any unforeseen events that might affect continued ethical acceptability of the project occur then you should immediately report this to the approving REC. You may be required to submit an amendment to this application, in order to determine whether the changed aspects increase the ethical risks of your project.

Based on the information supplied your application has been successful and is approved.

Please note the following additional conditions associated with this approval:

- (i) The reviewer recommends obtaining gatekeepers clearance from the City of Cape Town officials, taxi association members and Metrorail before interviewing any of their members. Please discuss this with your supervisor.
If taking photographs in which people can be identified, obtain their consent.
You do attach an informed consent form, missing from it is a clause that informs about data management i.e. how you plan to secure, store, code the data and later destroy it.
Will there be any feedback to participants?

Regards,

Engineering & Built Environment Committee.

Appendix B: Consent Forms



SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS

University of Cape Town
Private Bag x3, Rondebosch 7701
Centlivres Building
Email: WLLWAR007@myuct.ac.za 0788027875

MY NAME IS WARWICK WALLACE AND I AM STUDYING CITY AND REGIONAL PLANNING AT THE UNIVERSITY OF CAPE TOWN.

I AM DOING RESEARCH ON PASSENGER RAIL IN CAPE TOWN

AS PART OF MY MASTERS DISSERTATION I WOULD LIKE TO ASK YOU SOME QUESTIONS TO HELP ME WITH MY RESEARCH. I INTEND TO AUDIO RECORD THIS INTERVIEW WITH YOUR FULL PERMISSION.

PARTICIPATION IS ENTIRELY VOLUNTARY, WHICH MEANS YOU DO NOT HAVE TO PARTICIPATE IF YOU DO NOT WANT TO. YOU ARE FREE TO STOP AT ANY TIME YOU WISH. I CAN PROMISE THAT I WILL NOT RECORD YOUR NAME OR ADDRESS, OR ANY OTHER YOUR PERSONAL DETAILS WITHOUT CONSENT. CONFIDENTIALITY WILL BE UPHELD BY FOLLOWING THE UNIVERSITY OF CAPE TOWN ETHICS GUIDELINES.

I INTEND TO, IF NECESSARY, TRANSCRIBE THE INTERVIEWS TO MAKE SURE I FULLY UNDERSTAND THE ANSWERS THAT WERE GIVEN. IF YOU WOULD LIKE, I WILL ALSO NOTIFY YOU OF OR SEND PARTS OF THE DISSERTATION WHERE I HAVE USED INFORMATION FROM YOUR INTERVIEW SO THAT YOU CAN SEE HOW THE INFORMATION WAS USED. HOWEVER, AS MENTIONED, INTERVIEW DATA WILL ONLY BE USED WITH YOUR PERMISSION.

THE QUESTIONS I ASK ARE ONLY FOR RESEARCH AND THEY CANNOT DIRECTLY BENEFIT YOU OR YOUR COMMUNITY.

MY SUPERVISOR IS NANCY ODENDAAL AND HER CONTACT DETAILS ARE NANCY.ODENDAAL@UCT.AC.ZA

Signed by candidate

Signature (interviewee)

Signature of student

I give, you, Warwick Wallace, permission to use my;

Name

Organisation

Words

Signed by candidate

Brecht Harrison



SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS

University of Cape Town
Private Bag x3, Rondebosch 7701
Centlivres Building
Email: WLLWAR007@myuct.ac.za 0788027875

MY NAME IS WARWICK WALLACE AND I AM STUDYING CITY AND REGIONAL PLANNING AT THE UNIVERSITY OF CAPE TOWN.

I AM DOING RESEARCH ON PASSENGER RAIL IN CAPE TOWN

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THE QUESTIONS I ASK ARE ONLY FOR RESEARCH AND THEY CANNOT DIRECTLY BENEFIT YOU OR YOUR COMMUNITY.

MY SUPERVISOR IS NANCY ODENDAAL AND HER CONTACT DETAILS ARE NANCY.ODENDAAL@UCT.AC.ZA

Signed by candidate

Signature (interviewee)

Signed by candidate

Signature of student

I give, you, Warwick Wallace, permission to use my;

Name

Organisation

Words



SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS
 University of Cape Town
 Private Bag x3, Rondebosch 7701
 Centivres Building
 Email: WLLWAR007@myuct.ac.za 0788027875

MY NAME IS WARWICK WALLACE AND I AM STUDYING CITY AND REGIONAL PLANNING AT THE UNIVERSITY OF CAPE TOWN.

I AM DOING RESEARCH ON PASSENGER RAIL IN CAPE TOWN

AS PART OF MY MASTERS DISSERTATION I WOULD LIKE TO ASK YOU SOME QUESTIONS TO HELP ME WITH MY RESEARCH. I INTEND TO AUDIO RECORD THIS INTERVIEW WITH YOUR FULL PERMISSION.

PARTICIPATION IS ENTIRELY VOLUNTARY, WHICH MEANS YOU DO NOT HAVE TO PARTICIPATE IF YOU DO NOT WANT TO. YOU ARE FREE TO STOP AT ANY TIME YOU WISH. I CAN PROMISE THAT I WILL NOT RECORD YOUR NAME OR ADDRESS, OR ANY OTHER YOUR PERSONAL DETAILS WITHOUT CONSENT. CONFIDENTIALITY WILL BE UPHELD BY FOLLOWING THE UNIVERSITY OF CAPE TOWN ETHICS GUIDELINES.

I INTEND TO, IF NECESSARY, TRANSCRIBE THE INTERVIEWS TO MAKE SURE I FULLY UNDERSTAND THE ANSWERS THAT WERE GIVEN. IF YOU WOULD LIKE, I WILL ALSO NOTIFY YOU OF OR SEND PARTS OF THE DISSERTATION WHERE I HAVE USED INFORMATION FROM YOUR INTERVIEW SO THAT YOU CAN SEE HOW THE INFORMATION WAS USED. HOWEVER, AS MENTIONED, INTERVIEW DATA WILL ONLY BE USED WITH YOUR PERMISSION.

THE QUESTIONS I ASK ARE ONLY FOR RESEARCH AND THEY CANNOT DIRECTLY BENEFIT YOU OR YOUR COMMUNITY.

MY SUPERVISOR IS NANCY ODENDAAL AND HER CONTACT DETAILS ARE NANCY.ODENDAAL@UCT.AC.ZA

Signed by candidate

Signature (interviewee)

Signed by candidate

Signature of student

I give, you, Warwick Wallace, permission to use my;

- Name
- Organisation
- Words

Please send me draft if using quotes
 or names. Tx.
 Peter

Carly gone



SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS

University of Cape Town
Private Bag x3, Rondebosch 7701
Centlivres Building
Email: WLLWAR007@myuct.ac.za 0788027875

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