

# THE SOUTH AFRICAN PUBLIC TRANSPORTATION PROFESSIONAL

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## Abstract

The demise of public transportation in South Africa manifests itself in practically every public transportation study. There is continuous debate on the current public transport system, the quality of service, the ageing infrastructure, the rationalisation processes, land use patterns, poor subsidy targeting, poor public transport planning, operation and regulations, the funding of the implementation of Moving South Africa (MSA)<sup>♦</sup>, and the need for an integrated public transportation system. Frustration is setting in on skilled transportation engineers and is evident in the number of professional transportation engineers emigrating to Europe, North America, and Australia.

The National Land Transport Transition Act 2000 focuses on public transportation. It is significant that many officials and consultants in South Africa contributed to this policy. However, are there capable public transport professionals in South Africa to implement an effective and efficient public transport system?

The common practice in South Africa is that many Civil Engineers attempted public transport projects and through time has come to believe that they are public transport experts. Many officials travelled to worldwide to experience public transportation in short periods and have also come to believe that they are public transport experts too.

Transportation professionals should have post-graduate qualifications and more appropriately, from a tertiary institution in a country like for example, the USA, where effective, and sophisticated public transport research and implementation occurs. To implement the public transport plans for South Africa, it is imperative to utilise or appoint learned public transport professionals.

This paper investigates the availability of capable public transport professionals in South Africa to provide an efficient and effective public transport system in South Africa according to its policies.

## 1. Introduction

The demise of public transportation in South Africa manifests itself in practically every public transportation study. There is continuous debate on the current public transport system, the quality of service, the ageing infrastructure, the rationalisation processes, land use patterns, poor subsidy targeting, poor public transport planning, operation and regulations, the funding of the implementation of Moving South Africa (MSA), and the need for an integrated public transportation system. Frustration is setting in on skilled transportation engineers and is evident in

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<sup>♦</sup> The South African Transportation Strategy leading up to 2020 (1).

the number of professional transportation engineers emigrating to Europe, North America, and Australia.

Dickson comments on competition between bus and taxi in Cape Town at a time when violence broke out between the operators.

“Obligated by law to run to published timetables and to charge laid-down fares, buses cannot compete equally with the minibus-taxi, which generally runs where and when they wish. People waiting at bus stops readily board whichever mode stops first, something easy for the taxi to contrive. Bus drivers, earning union-negotiated wages, enjoy pension and medical funds. Provincial, metropolitan, and city authorities claim constantly – albeit unconvincingly – that the taxi situation is being regulated, but the taxi publicly repudiate the new provincial permit system, and they want the local Road Transportation Board, which declines to issue permits for unroadworthy vehicles to be staffed with people more sympathetic to their cause. Whatever happened to the notion that it is the customer who matters in public transport? South Africans decrying breakdown of the rule of law in nearby countries can find instructive examples much nearer home (2)!”

John Berks on Talk Radio 702 on 20 November 2000 discussed the impact of aged drivers in private vehicles. Their discussion deduced that since there is “No Public Transport in South Africa” older people have to drive. Is there really ‘no public transport’ or is there no efficient and effective public transport in South Africa? If South African officials continue in conventional thinking on public transportation, then the nation of South Africa will continue in their daily commuting struggles, which has numerous implications on the economy of the nation.

South Africa comprises of polarised communities. In transportation planning context, there is the minority of financially secure people with convenient transportation alternatives and there is the majority of poor people captive to public transportation. A large portion of the monthly earnings of poor people is used for home-based work trips by public transportation. This commute may comprise of long hours of travel on poor infrastructure with safety concerns, and with more than one transfer per journey. These concerns are common talk among politicians, public transport officials like Executive Directors, Chief Planners, and transportation consultants, but little is done to initiate a radical public transport revolution in South Africa. The intention of this paper is to identify the desperate need for skilled transportation planners and engineers in South Africa to make a dynamic impact on the South African transportation system.

A low proportion of lower income people is in the process of gradual financial advancement and prefers their own motor vehicle. There is however a high proportion of captive public transport ‘patronage.’ The current philosophy in public transportation is to maintain this patronage? What happens when urban highways are congested, cities are identified as ‘non-attainment areas<sup>♦</sup>,’ and the value of time of commuters’ increase? These circumstances already exist in some cities in South Africa without equally accelerated proactive programs to eliminate the problems and improve the standard of living in South Africa.

Is the South African government accentuating the problem of a fragmented public transport system by prematurely privatising a volatile niche market? Who gives counsel to officials of all tiers of government especially National Government on transportation planning issues? Professional public transport engineers and planners?

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<sup>♦</sup> Non-attainment areas is a phrase used in the USA in conjunction with the Clean Air Act Amendments to classify an area that has reached dangerous air pollution levels, and the respective authority is illegible for public funds to implement mitigation measures.

By painting a bleak picture of the public transport system of Sought Africa, is there hope? Certainly! Jaime Lerner, engineer, architect, city planner, and former mayor of Curitiba, now United Nations consultant for urban affairs, was responsible for the largest set of joint urban changes made in a single city in the world, that made the city a world famous example of environmentally sound solutions, including transportation solutions (3). Learner's sentiments follow.

"When governments think in economic terms without considering the people, tragedies happen. When citizens feel respected in their day-to-day activities – such as going to work, educating their children, being cared for when sick – they accept co-responsibility for the city. We felt we couldn't sacrifice a whole generation waiting 20 or 30 years for the necessary funds. So we looked at the possibility of a transport system that would offer the same advantages as the subway (heavy rail): speed, comfort, security, and frequency. We realised there was space for creativity. When we designed the first element of our transport system – buses travelling along an exclusive lane with stops every 500 meters – the system carried 25 000 passengers a day. We expanded and perfected the system and now have 2 million passenger journeys a day. It was around 200 times cheaper to build, per kilometre than a subway system and is being studied by major cities around the world. Passengers pay a single price for a journey however many transfers they have to make. My biggest frustration when working as a consultant is meeting so many people in major cities of the world who don't really believe that change is possible (3)."

The objective of this paper is to indicate the need for public transport professionals to expedite the planning and implementation of the South African Public Transport System, to realise the Moving South Africa strategy and the National Land Transport Transition Act.

## **2. Motivation**

The South African people both rich and poor are still bound by the conventional public transportation system. Currently, there are no alternatives to the increasing fuel cost neither are there alternatives to the low standard, inefficient, and ineffective public transport system. Commuters do not complain because they are not aware of the possible conveniences public transportation can offer. As transportation professionals and elected officials, are we really improving the lives of the previously (presently) disadvantaged?

The South African Transport magazine interviewed Dr Mostert of the Department of Transport Economics at Rand Afrikaans University, Johannesburg (4). Dr. Mostert commented that there were numerous conferences and seminars on public transportation and volumes of notes produced without any tangible result. He further stated that poor leadership exacerbates the current problems in public transportation in South Africa. The reason for poor leadership is that affirmative candidates are placed in positions they are not yet capable of managing and there are remnants of the 'old guard' waiting for their retirement. Mostert further expresses his disgust by saying that we do not need technocrats and political appointments, but people who are serious about making public transport work effectively. Mostert also commented that he does not want to see engineers involved in public transport planning. Mostert also said, "I would remove the engineers from any involvement in public transport planning (4)."

The author must opine that Mostert is partially justified on the basis that Civil Engineers and Town Planners are self acclaimed transportation engineers, that is, these graduates are not trained at the post-graduate level in Transportation Engineering and planning, as a result there exists unclear and fragmented institutional arrangements. Here we discover the other problem to the demise of public

transportation in South Africa – the lack of public transportation engineering and planning skills in a country that talks a great deal of public transportation!

The MSA 1998 also realised the need for transportation skills in all tiers of Government.

“South Africa rated worst of 46 countries in a survey of human resource development practices. Whereas the pre-transition economy stressed labour creation in transport jobs, the new economy that is competing globally needs transport workers with sufficient skills to create value in their work. With nine provinces holding increasing responsibility for transport service delivery, the capacity within Government becomes a critical potential obstacle for transport to meet the national and customer objectives. While all provinces are experiencing technical and administrative skills shortages and high turnover, the problem is most salient in the newly established provinces, and the least amount of training occurs in the provinces that need it the most. As provinces gain responsibilities, new skills are needed in the realm of land use and infrastructure planning, contract design and management, monitoring and enforcement, and multi-modal passenger system research, design, and support. These skills are also needed at the national level to help create and propagate the vision and make the critical scope and density decisions (1).”

Kingma, head of Public Transport, Cape Metropolitan Council, shares similar sentiments on the need for public transport professionals.

“The two key elements of the National Land Transport Transition Act (NLTTA) are the establishment of Transport Authorities and the devolution of powers to the Transport Authorities. To date local government acknowledged the importance of public transport in vision statements and policies. However, they have shied away from implementing the vision statements and policies. This is primarily because they don't want to commit themselves to the costs associated with public transport. However, there is another reason and that is, municipal engineers have virtually no experience or training in how to deal with public transport. The problem is compounded by the fact that there are no university or technician training programmes, which are geared towards public transport. The limited transportation courses, which are available, concentrate primarily on road and traffic engineering. This is an area where the National Department of Transport needs to take the lead and bring out experts to provide courses to build the capacity of municipal engineers in the field of public transport (6).

It was evident in many public transport studies carried out recently (1999 – 2000) for the Pretoria Metropolitan Council (now Tshwane Metropolitan Municipality), were not practical and workable. In fact a major portion of many reports was actually derived out of public transport literature that are not applicable to the current South African needs. It is necessary now to declare that South Africa needs radical public transport solutions for immediate implementation that compliments the ultimate implementation plan 2020 hence.

The South African Government is firmly committed to making rail a more attractive and widely available mode of public passenger transport, concession rail operations, rationalise services in relation to metropolitan planning for optimal mode-for-route choice, integration with other transport modes, and empower small contractors, etc. The South African Government is not adequately equipped with transportation skills to implement the MSA strategy with its current transportation officials. The Minister however, mentioned that close attention is being given to building sufficient capacity in the provincial departments of transport to manage this function in a cost effective manner while meeting the needs of customers in a manner appropriate to market conditions (5).

### **3. Service Delivery**

The captive public transport passenger continues in yet another struggle, congestion is in the increase, and air quality is dissipating. Public transportation is also an applied science and unique solutions are necessary for the South African public transportation system. South Africa needs a public transport implementation plan within the framework of the Moving South Africa Strategy for 2020 and the NLTTA. Are we equipped for the task? Current public transport planners assume that taxi ranks, lay-byes; colour coding of vehicles, and contracted routes is achieving a better public transport system. Such initiatives are minuscule relative to an integrated co-ordinated Public Transport System.

The National Department of Transport is responsible for policy development such that Provincial and Local government implementation plans are consistent within the framework of National policies.

Local government has a range of powers and functions defined in the Constitution, in Part B of Schedules 4 and 5. Considering the added responsibility of Provincial and Local government where delivery of service to the public is dispatched, it is imperative for these authorities to house professional transportation engineers and planners. Intuitively, planning and engineering consultants should also employ professional transportation planners and engineers since most government authorities frequently appoint consultants to investigate and design solutions.

The powers listed in Schedule 4, over which National and Provincial governments have concurrent legislative competence, in context, includes control of vehicle related air pollution and municipal public transport. The powers listed in Schedule 5, over which Provincial government has exclusive legislative competence in context includes municipal roads, noise pollution, street lighting, traffic and parking (7).

The provincial MEC for Transport may, in agreement with the municipalities concerned, designate a municipality or a combination of municipalities, as a transport authority (TA) for its or their jurisdiction, to be known as a transport area. The MECs may designate Transport Authorities for the purpose of planning, co-ordination and integration, implementation, ensuring transport law enforcement, and monitoring and funding of land transport in the provincial and local government spheres.

Specific duties of the TA includes the establishment of fare structures, concession fares, travel demand management, marketing, promotion and publicity associated with the provision of transport services, etc. Transport Authorities are yet to be established in South Africa!

### **4. The Way Forward**

The authors of the MSA study declared that *South Africa undertook to accomplish the most ambitious, comprehensive, leading-edge work in transport strategy in many decades in any part of the world.* Patronising indeed! Developing the strategy looks difficult for sure, but the search for competent transport engineers and planners in South Africa to develop its public transport system, is even greater! MSA acknowledges that for co-ordination to work in land use planning and transport regulation, all tiers of Government should improve its skilled resources and capabilities.

MSA recommends a co-ordination agenda that includes a transport alignment with training institutions to provide for sector capacity needs and to create a talent pool for the transport sector generally, in context, the training of transportation professionals. MSA further explains the recommendation that to overcome critical human capacity deficiency in both private and public

sectors, the NDoT should create vehicles through which other actors can pool resources into Centres of Excellence which will serve as the epicentre of training and distribution of specific expertise, creating a core team of experts to leverage elsewhere in the system. For example, the strategy can target provincial and local transport professionals into the Centres of Excellence to gain valuable expertise and exposure before going back to their office to implement the strategy.

The implementation of this recommendation is twofold. The National Department of Transport together with competent professionals must first establish a public transport implementation plan for each metropolitan area, that is, the development of an efficient heavy rail system complimented by the bus and midi-bus feeder system.

Kingma suggests in his IMIESA article that despite the lack of formal training in public transport, municipal engineers need to move out of their comfort zones and take up the public transport challenge. The experience gained from becoming involved will very soon compensate for the lack of formal training (6). How? Kingma suggests that officials use public transport on a regular basis, and should then apply engineering intuition to find solutions to improve public transport. This is just too simplistic, since transportation planning and implementation is expansive and complex, and certainly needs the expertise of transportation professionals.

The reason for debates and so little done is certainly due to the lack of appropriate skills in South Africa. Are there adequate resources in South Africa to train transportation engineers and planners, specifically in public transportation? Certainly!

Comprehensive transportation studies were always at postgraduate level. It is evident that accelerated training in transportation studies is necessary. Environmental studies were also traditionally studied at postgraduate level. In 1999 the University of the Witwatersrand-Johannesburg (Wits), offered Environmental studies at undergraduate level, in the department of Civil Engineering. Similarly, it is possible to create a transportation curriculum at undergraduate level at tertiary institutions especially those institutions with established transportation research centres. The South African Institution of Civil Engineering and the National Department of Transport should also promote this proposal for accelerated training in transportation.

Tertiary institutions in South Africa were researched on courses and postgraduate programmes in transportation and are listed in Appendix A. The research confirms that transportation studies are traditionally offered at postgraduate level, that is, Master of Engineering, Master of Science, and Bachelor of Technology. However, the course list indicates the strength of South African tertiary institutions in pavement technology and traffic engineering. It is realised that most South African tertiary institutions are not prominent in transportation planning, mass transit design and planning, air transportation planning and design, and marine transportation planning and design. In most Technikon programs, public transport is included in urban planning courses; hence the study on public transport is focused on public transport systems and not public transport planning, operations, and management.

We are fortunate to have at least two major transportation centres at Stellenbosch University and University of Pretoria. However, other major universities like Cape Town, Wits, Rand Afrikaans University, and Natal Technikon are planning to start a transportation program in the near future. Nevertheless, there is still a poor distribution of transportation centres in the country especially the lack of training in the Northwest, Northern Province, Free State, and Mpumalanga provinces.

A brief comparison is also made with some prominent universities in the United States. Geometric design and pavement engineering are also strengths of these transportation centres. More appropriately, planning and public transportation are also comprehensively taught at these

universities. There are of-course large investments in public transportation research and implementation in the United States.

The transportation profession in South Africa should learn from Europe and USA, and transform its poverty mentality. It seems that many South African transportation planners and engineers are complacent and do not expand their capabilities to produce workable solutions to achieve an efficient, safe, and effective public transportation system. Neither is the transportation professional pressuring the National Government to implement an integrated multi-modal transportation system. Many transportation officials and planners are convinced or simply constrained due to the lack of knowledge, that min-bus and midi-bus taxis are the future of public transportation of South Africa, while the Minister of Transportation explicitly acknowledged in an interview on Beckett's Trek (magazine program on South African television) that rail should be the back-bone public transport mode in South Africa.

In the long term the profession should motivate and inspire engineering undergraduates to opt for a career in transportation engineering. It was observed at the South African Road Federation conference and the South African Transport Conference, that there were very few students attending, and very limited involvement of students at the conference.

Onsongo studied the trends on South African University and Technikon intake and graduation of Civil Engineers from 1980 to 1999. It was deduced that Civil Engineering intake and graduation numbers have declined. It was also discovered that there was a steady increase in Technikon Civil engineering intake and graduates from 1994 onwards (8).

Therefore greater emphasis on promoting transportation studies should be placed at Technikons. There is urgent need for the South African Institute of Civil Engineering to start formal student chapters at tertiary institutions. Student chapters tend to proactively inform students on current projects and partially prepare students for the real world of engineering. In the process, students are encouraged into various divisions of Civil Engineering including transportation. Student members of SAICE should attend transportation conferences and seminars at no cost.

In conclusion, without personal transformation and a professional attitude, it is not possible to enhance democracy and achieve a better South Africa.

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APPENDIX A: Transportation Courses of Selected Tertiary Institutions										
Course	W Cape	GP			E Cape	KZN		USA		
	Stellen.	UP	WITS Tech	Pta Tech	PE Tech	UND	Natal Tech	Cal.Berkely	MIT	TAMU
Labour Based Road Eng.						y				
Labour intensive road const.						y				
Environmental Eng.						y		y		
Flood Hydrology						y				
Concrete Pavements			y	y	y	y	y	y		
Pavement Design	y	y	y	y	y	y	y	y		y
Pavement Materials	y	y	y	y	y	y	y	y		y
Pavement Mgmt	y	y								
Transport Development						y				
Transport Control						y				
Transport Economics	y					y		y	y	y
Public Transport/Transit	y	y				y		y	y	y
Traffic Engineering	y	y	y	y	y	y	y	y		y
Transportation Planning	y	y	y	y	y	y	y	y	y	y
Urban Planning and Design		y			y		y	y	y	y
Railway Engineering			y		y					
Air Transportation								y	y	y
Marine Transportation									y	
Transportation Safety	y	y						y		
ITS								y		y
Transportation Logistics								y	y	
Transportation Management								y	y	y
Geometric Design	y	y	y	y	y	y	y	y		y
Traffic Signals						y		y		y
Transportation Technology			y	y	y		y			
Traffic Flow Theory	y	y						y		y

Y – yes

N - no



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## **Resume of Kollan Pillay**

1. A former resident of Verulam, north of Durban.
2. Graduated from Glenhaven Secondary School in Verulam, in 1991.
3. Graduated from University of Natal in 1995.
4. Employed by the National Department of Transport in 1996.
5. Graduated from Texas A&M University 1999.
6. Currently employed with the National Roads Agency in Pretoria.
7. Seconded to the Tshwane Metropolitan Municipality for experiential training in Transportation Planning and Road Construction.
8. Currently functioning as a resident engineer on the Upgrade of Dr Swanepoel Road north of Pretoria.