UNIVERSALLY ACCESSIBLE PUBLIC TRANSPORT SYSTEMS: EXPERIENCES WITH IMPLEMENTATION IN THE THIRTEEN INTEGRATED PUBLIC TRANSPORT NETWORK MUNICIPALITIES IN SOUTH AFRICA

by

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SUMMARY

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South Africa has a deeply entrenched relationship with the global Disability Rights Movement and the social model of disability, the roots of which were nascent as early as 1964 in Nelson Mandela's Rivonia Trial speech. Since South Africa's transition to democracy in 1994, steps have been taken through legislation and policy to give expression to disability rights.

The Constitution of the Republic of South Africa, 1996 recognises disability equality together with race and gender equity and other rights. In 2007, South Africa was one of the first countries to sign the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), and the UNCRPD was established as a national objective through the White Paper on the Rights of Persons with Disabilities, 2015 (WPRPD).

The Promotion of Equality and Prevention of Unfair Discrimination Act, 2000 references universal design, universal access and reasonable accommodation as tools to achieve disability equality through safe, equal and dignified access. From 2008, new regulations were applied to public buildings, public space, transport and housing, and new infrastructure standards were introduced to promote accessibility.

The DoT's Moving South Africa study (1999) identified barriers to all forms of transport for special categories of passengers. In 2007, the Department of Transport (DoT) developed the Public Transport Strategy to help guide, support and monitor municipalities in implementing accessible public transport systems, and 13 major municipalities were selected to test the implementation of the Integrated Public Transport Network (IPTN): Johannesburg, Cape Town, Tshwane, Ekurhuleni, Nelson Mandela Bay, Buffalo City, eThekwini, Polokwane, Rustenburg, Mbombela, Msunduzi, and Mangaung. A thirteenth was added in 2013/4, George. The Public Transport Network Grant (PTNG) was aimed at helping municipalities to accelerate the construction and improvement of accessible, affordable, integrated, efficient and sustainable public transport networks within the 20-year timeframe provided in Moving South Africa.

The National Land Transport Act, 2009 mandates universal access in public transport. In 2016, in pursuit of this aim, the DoT published the Comprehensive Integrated Transport Plan, as well as the first standards for pedestrian crossings in line with WPRPD requirements. The DoT developed the Universal Design Access Plan (UDAP) for the 13 IPTN municipalities to record and measure progress towards a universally accessible transport system.

This master's dissertation examines and evaluates the implementation of universally accessible transport systems in the 13 IPTN municipalities, between 2010 and 2020, within this context.

ABBREVIATIONS AND ACRONYMS

ACPF	African Child Policy Forum
BRICS	Brazil, Russia, India, China and South Africa economic partnership
BRT	Bus Rapid Transit
CBE	Council for the Built Environment
CITP	Comprehensive Integrated Transport Plan
COGTA	Department of Cooperative Governance and Traditional Affairs
COVID-19	Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
CSIR	Council for Scientific and Industrial Research
CSR	Corporate Social Responsibility
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DMPE	Department of Monitoring and Evaluation
DoH	Department of Health
DoL	Department of Labour
DoT	Department of Transport (National)
DPI	Disabled Peoples' International
DPO	Disabled Persons' Organisation
DPSA	Disabled People South Africa
DPW	Department of Public Works
DSD	Department of Social Development
DTIC	Department of Trade, Industry and Competition
EU	European Union
GAATES	Global Alliance on Accessible Technologies and Environments
GDP	Gross Domestic Product
GNI	Gross National Income
HIV	Human Immunodeficiency Virus

HSRC	Human Sciences Research Council
ICF	International Classification of Functioning, Disability and Health
ICT	Information and Communication Technology
IDP	Integrated Development Plan
INDS	Integrated National Disability Strategy
IPTN	Integrated Public Transport Network
ISO	International Organization for Standardization
ITF	International Transport Forum
KPI	Key Performance Indicator
MBT	Minibus Taxi
NAS	National Academy of. Sciences
NCD	Non-Communicable Disease
NDP	National Development Plan
NGO	Non-Governmental Organisation
NHTS	National Household Travel Survey
NLTA	National Land Transport Act
NMT	Non-Motorised Transport
NTR	National Technical Requirement
OECD	Organisation for Economic Cooperation and Development
PEPUDA	Promotion of Equality and the Prevention of Unfair Discrimination Act
POE	Post-Occupancy Evaluation
PRASA	Passenger Rail Agency of South Africa
PTND	Public Transport Network Development, Department of Transport
PTNG	Public Transport Network Grant
PWGD	Presidential Working Group on Disability
RA	Reasonable Accommodation
RDP	Reconstruction and Development Programme

RSA	Republic of South Africa
SABS	South African Bureau of Standards
SAHO	South African History Online
SAHRC	South African Human Rights Commission
SANS	South African National Standards
SAPS	South African Police Service
SDG	Sustainable Development Goal
SIAS	Screening, Identification, Assessment and Support
SOE	State-owned Entity
StatsSA	Statistics South Africa
TOD	Transit-Orientated Development
ToR	Terms of Reference
UA	Universal Access
UD	Universal Design
UDA	Universal Design and Universal Access, Public Transport Network Development
UDAP	Universal Design Access Plan
UN DESA	United Nations Department of Economic and Social Development
UN	United Nations
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UPIAS	Union of the Physically Impaired against Segregation
W3C	World-wide-web Consortium
WHO	World Health Organization
WPRPD	White Paper on the Rights of Persons with Disabilities

DEFINITIONS THAT APPLY IN THE SOUTH AFRICAN POLICY ENVIRONMENT

Disability	The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) does not attempt to define disability per se but rather recognises disability as an evolving concept. Disability is imposed by society when a person with a physical, psychosocial, intellectual, neurological and/or sensory impairment is denied access to full participation in all aspects of life, and when society fails to uphold the rights and specific needs of individuals with impairments. Persons with disabilities experience three main types of interrelated barriers: social (including high cost, lack of disability awareness and communication difficulties); psychological (such as fear for personal safety); and structural (including infrastructure, operations and information) (RSA, 2015c).
Disability Discrimination	Discrimination on the basis of disability means any distinction, exclusion or restriction of persons on the basis of disability, which has the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise, on an equal basis with others, on all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. It encompasses all forms of unfair discrimination, whether direct or indirect, including denial of reasonable accommodation (RSA, 2015c).
Integrated (Rapid) Public Transport Network	A system in a particular area that integrates public transport services between modes, with through-ticketing and other appropriate mechanisms to provide users of the system with the optimal solutions to be able to travel from their origins to destinations in a seamless manner (RSA, 2009a).
Mobility	How a person, whether with a disability or without, moves in their current environment. It is the ease of human movement with or without the use of assistive devices (such as devices that augment dexterity, communication, sight or hearing) and mobility aids, such as wheelchairs, crutches, guide dogs and mobility canes (RSA, 2017).

Non-Motorised Transport	Non-Motorised Transport (NMT) refers to all forms of movement that do not rely on an engine or motor for mobility. Walking and cycling are more common forms of NMT, but it also includes other transport options such as pedicabs, roller-skates or in-line skates, skateboards, wheelbarrows, pushcarts and non-powered scooters (DoT, 2018).
Universal Access	Universal access means the removal of cultural, physical, social and other barriers that prevent people with disabilities from entering, using or benefiting from the various systems of society that are available to other citizens and residents. The absence of accessibility or the denial of access is the loss of opportunities to take part in the community on an equal basis with others (RSA, 2015c).
Universal Design	Universal design is the design of products, environments, programmes and services to be usable by all persons to the greatest extent possible without the need for adaptation or specialised design. Assistive devices and technologies for particular groups of persons with disabilities where these are needed must also respond to the principles of universal design. Universal design is, therefore, the most important tool to achieve universal access (RSA, 2015c).

DECLARATION

I declare that the dissertation, which I hereby submit for the degree Master of Town and Regional Planning by Dissertation at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

ETHICS STATEMENT

The author, whose name appears on the title page of this dissertation, has obtained, for the research described in this work, the applicable research ethics approval.

The author declares that she has observed the ethical standards required in terms of the University of Pretoria's Code of Ethics for Researchers and the Policy guidelines for responsible research.

Signature:
Amanda Elizabeth Gibberd
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FOREWORD

This master's dissertation begins with extracts from the lives of two people: Mr Simbuku from Izinyawo in Cofimvaba, Eastern Cape in 2018 (Groundup, 2018), and Mrs Cargeege from Bryanston, Johannesburg in 2011 (UDA, 2020). These extracts are from cases in the records of the South African Department of Transport (DoT). They have been used to illustrate the current lack of the right of disability equality experienced in reality, despite the new rights that the Constitution of the Republic of South Africa, 1996 heralded, by including disability equality in the Bill of Rights. The Right of access includes the right to transport, and the right to participate in life's activities. Only these two stories are referenced, but many others could have been used to illustrate similar circumstances, whether in a transport environment or other context, including the people who died in the Life Esidimeni tragedy (Makgoba, 2017). The Foreword seeks to illustrate the relationship between real, lived life events and government policy, which should have led to the implementation of a different form of reality. It is against this context that this master's dissertation on *Universally accessible public transport systems: experiences with implementation in the thirteen integrated public transport network municipalities in South Africa* should be viewed.

Mr Masibulele Simbuku

Mr Masibulele Simbuku was 25 years old in 2020, and was able to move, on his own, for the first time in 2018. Until the Cofimvaba Advice Office gave him a wheelchair at the age of 23, his mother had carried him on her back since he was born in 1995.

Mr Simbuku is unable to walk or talk due to an undiagnosed childhood illness. He did not receive the right services from the departments of Health or Social Development to avoid this illness through vaccination or to treat it once contracted. He was registered to receive a disability grant. His father left the family in 2001, and ever since the family has depended on his disability grant, which was an amount of R1,780 (US$134.4) per month in 2018.

Mr Simbuku requires transport, but only some taxi drivers will provide it. Others refuse to transport him. With limited income, his mother continued to carry him as he grew. The founder of the Cofimvaba Advice Office, Mr Kambi, noticed Mrs Simbuku carrying a grown man in town and thought that the man was drunk. On stopping to investigate, he discovered that the grown-up son she still had to carry, due to the lack of government services available to her, was not drunk but had a disability.

Mr Simbuku has never received a diagnosis. He received neither a wheelchair from the Department of Health nor any rehabilitation. He has quite possibly also not received an education. Circumstances indicate that he would not have been able to get to school. If he had, the teachers would likely have

refused to teach him after a certain age when he could not be carried around an inaccessible school, or he would have dropped out of school because it would have been too tiring to get to class or to keep up with the lessons. He has subsistence-level income from a disability grant, but he has not been able to access a learnership, receive any skills training or attend a university, despite government policy which should have helped him to. He has not been able to get a job, and neither has his mother, because she has cared for him all his life due to a void of basic services, including transport.

Mr Simbuku was just one year of age when the Constitution of the Republic of South Africa, 1996 (RSA, 1996b) was promulgated, giving him equal rights in law not only because of his race but also, unusually in a developing country or even in a developed country at the time, because of his future disability. It is unknown when his childhood illness caused him to acquire this disability. He was two years old when the Integrated National Disability Strategy (INDS) was published (RSA, 1997a), setting out the approved governmental approach to disability equality. He was five years old when the Promotion of Equality and Prevention of Unfair Discrimination Act, No. 4 of 2000 (PEPUDA) gave meaning to his right to equality, dignity and safety (RSA, 2000b). He was aged nine in 2004 when he should have been able to get to court to demand these rights because all courts then had to be made accessible to him. He was still nine when another Equality Court case was won, which should have caused all buildings to be modified so that they were accessible, due to the findings of the case. Mr Simbuku was 12 years old in 2007 when South Africa signed the United Nations (UN) Convention on the Rights of Persons with Disabilities (UNCRPD), and aged 20 when, because the INDS had made so little impact on equal rights, Cabinet released the White Paper on the Rights of Persons with Disabilities (RSA, 2015c).

Mr Simbuku was aged eight when the National Health Act, No. 61 of 2003 (RSA, 2003b) gave him equal access to health care, and aged 12 when the Framework and Strategy for Disability and Rehabilitation Services in South Africa (DoH, 2006) should have given him access to a wheelchair.

He was one year old when the National Education Policy Act, No. 27 of 1996 (RSA, 1996a) and the South African Schools Act, No. 84 of 1996 (RSA, 1996d) gave him equal access to education. He was six years old when the Education White Paper 6 on Special Needs Education (DBE, 2001) should have enabled him to get access to the reasonable accommodation he would have needed in the classroom, had he been admitted to a school. He was aged 16 when the Guidelines for Responding to Learner Diversity in the Classroom through the National Curriculum Statement were published (DBE, 2011). He would have been reaching the end of his school career, if such a career had ever begun, when the Department of Basic Education (DBE) published the Policy on Screening, Identification, Assessment

and Support (SIAS) (DBE, 2014), providing a policy framework for the standardisation of the procedures to identify, assess and provide programmes for all learners who require additional support to enhance their participation and inclusion in school. If he had been kept behind during his school career, had he had one, he should have received a SIAS assessment to properly identify and accommodate his learning needs.

He was three years old when the Employment Equity Act, No. 55 of 1998 (RSA, 1998a) was published, seven years old when the Code of Good Practice on the Employment of People with Disabilities was first released in 2002 (RSA, 2002, reissued as 2015a), and aged nine when the Technical Assistance Guidelines (DoL, 2004) were issued; all in time to ensure that employers would be able to accommodate him, in the career he never had. He was aged three when the Skills Development Act, No. 97 of 1998 (RSA, 1998c) was promulgated, and aged four when the Skills Development Levies Act, No. 9 of 1999 (RSA, 1999b) set up learnerships, in time for skills development he was never given access to.

Mr Simbuku was aged 13 when the National Building Regulations and Building Standards Act, No. 103 of 1977 was amended in 2008, and aged 16 in 2011 when new minimum standards were introduced to make buildings more accessible, but were rarely, if ever, implemented. The 2008 amendment to the building regulations should have created more accessible housing, public buildings, transport facilities and public space, all of which he should have been entitled to use, but he did not benefit from improved access because such buildings were not planned or built.

Mr Simbuku was four years old when the DoT published the recommendations of the Moving South Africa study (DoT, 1999), aged 12 when the Public Transport Strategy (RSA, 2007b) indicated that transport would be 100% or universally accessible. He was 14 years old when the Implementation Strategy to Guide the Provision of Accessible Public Transport Systems in South Africa (DoT, 2009) and the National Land Transport Act, No. 5 of 2009 (RSA, 2009a) were released to make all public transport accessible. He was 15 years old in 2010 when the Public Transport Network Grant (PTNG) included conditions for selected municipalities to develop a Universal Design Access Plan (UDAP) to show how public transport was going to become accessible in his lifetime, as pilot projects for the rest of the country. He was 21 years old when the DoT published the Minimum Requirements for the Preparation of Integrated Transport Plans (DoT, 2016b), which included universal access as a minimum requirement, and applies to all municipalities whether they received the PTNG or not. He was 23 years old when the DoT received a Zero Project Award (Zero Project, 2018) in recognition of its progress in providing universally accessible public transport, which will probably never reach Cofimvaba at the

current speed of progress with the rollout. Unfortunately, it is clear from the complaints system that the DoT operates that Mr Simbuku's case is not unusual.

In 2018, Mr Simbuku was given a wheelchair, thanks to an individual donation from Mr Kambi, the founder and director of the Cofimvaba Advice Office. Despite any legislation passed, awards received or policies written, Mr Simbuku has been helped only by a system of patronage, sympathy and charity, the only functioning system available to him in 2018, 24 years after the founding of democracy in South Africa, and 23 years after his birth. He and his mother are grateful for the mere wheelchair he has received, because it has given both of them a degree of freedom that they were not previously able to imagine. The other life that he was supposed to have is not just beyond their comprehension, but would appear to be beyond the comprehension of both the national government and society, because it did not happen despite legislative and policy provisions. Mrs Simbuku expressed her gratitude for her son's wheelchair. The family consider the end of this story a success, despite the lack of access to the life that the Constitution and the government promised. She said: *"For the past 23 years, I used to carry him on my back. It was easy when he was young, but as he grew older he was becoming heavier each year. But I had to carry him; he is my son."* (Mrs Simbuku, 2018).

On waiting for a wheelchair from the Department of Health for years, Mrs Simbuku said, *"I used to have stress every time I had to take him to the hospital or social development because I had to carry him on my back, heavy as he is. Sometimes I would go and ask my father to help me carry him. I always suffer back pain," said his mother. "That is all in the past now. I will be able to push him around on his wheelchair," she said. "I never knew this day would come. I am happy beyond words."* (Mrs Simbuku, 2018).

Mrs Cargeege

In 2007, Mr Roy Cargeege lost control of his wife's wheelchair on a ramp that was too steep, and his wife fell out. He tried to take the case to the Equality Court in terms of the Promotion of Equality and Prevention of Unfair Discrimination Act, No. 4 of 2000 (PEPUDA) himself, and eventually received notification four years later in 2011 that the case would be heard. This was his reply:

> *6 August 2011*
>
> *My sincere apologies for not having replied to you earlier, but I have been overtaken with very traumatic events indeed. Very sadly, my wife passed away in mid-January. This was only a week or so before her matter was due to be heard in the Equality Court.*

I have to say that I am disgusted, if not thoroughly sickened, at the way that persons with a disability are side-lined, put down and legally denied. It is indeed a huge travesty to justice…that this matter was not able to run its full course. Had the court decision gone against us, I had an undertaking from the government that the Human Rights Commission would be instructed to appeal. I had a further offer and arrangement in place for a complaint to be lodged with the UN Commission for Human Rights in Geneva. So, in fact, all of the bets were hedged.

Not that any of this would have been required since I got the respondent's attorneys to get permission to enter the site to do a survey of the ramp. The Clerk of the Court was invited to attend as a witness and certified all readings and measurement taken. The respondent's attorneys were also invited to attend but did not show up. From pre-demolition site photographs it was possible to establish exactly what the geometry of the original ramp had been. This turned out from the definitive site survey to be steeper than 1:7.

I had also done an analysis which showed that if a wheelchair was 'wheeled' as opposed to self-operated, down a ramp, the load on the back wheels was already negative at a gradient of around 1:9. This means that the back wheels of the wheelchair were physically being lifted off the surface due to the upward component of the braking force being applied to the chair via the arms of the 'pusher'. This is a case-by-case matter as it is more severe as the 'pusher' gets taller – I am almost 1.98 m. With me operating the chair i.e. attendant propelled, in fact, the downward vertical load on the rear wheels was so low when steeper than 1:10 that even a slight unconformity in the paved surface could have initiated and resulted in a forward tip of the wheelchair.

When I first submitted this complaint to the Human Rights Commission [HRC] in 2007, they…sat on [my response] for almost a year…. The attorney who investigated it had phoned the SABS in effect to ask them whether they could test an already demolished ramp…. Very obviously a demolished ramp does not qualify.

The HRC declined the complaint because the evidence was destroyed. I immediately appealed the decision, and almost a year later the rejection of the complaint was upheld with the condition that if I could provide independent expert opinion that a ramp steeper than 1:12 was hazardous to a person in a wheelchair, they would consider the matter. Well as you know, since you very kindly attempted to assist me in locating the asked-for proof, it does not exist. As far

as I know, there is no proof either that a road speed in town of 59 kph is safe but 61 is not. Many of these legal limits (such as 1:12) are established from convention and experience and not from scientific calculation.

I am indeed sorry that this case was unable to run its full course. It had the insurance company, by the admission of their senior counsel in court, shaking with fear. It should have resulted in the Johannesburg City Engineer being fired if not prosecuted for fraud, as well as the building architect. The insurer of the building who undertook the insurance, without independently checking its legality, should have been implicated as well as the main contractor, building owner, business operator, and even possibly the tenants. 9(b) [of the Promotion of Equality and Prevention of Unfair Discrimination Act, No. 4 of 2000] is draconian in its demands – and rightly so. One would have thought by reading the law that there was no loophole whatsoever. Yet in reality, until a case is actually brought to court, this country is going to get nowhere in its human rights undertakings for the disabled." (Roy Cargeege, 2011).

People with disabilities have not been able to enjoy a life equal to others, because the government has not responded to the demands of the Constitution. Something has failed, but it is as yet unclear what this is. Given the advanced nature of the South African Constitution, any country in 1996 might have struggled to comprehend the kind of changes required in the government to bring about disability equality at the constitutional level. Neither service providers in the government or business, nor line functions in the government seem to have been able to conceive this level of equality in society.

Mrs Cargeege's story demonstrates the failure of the government over the past 25 years to exercise any kind of controls over building regulations and standards for either temporary or permanent buildings and structures. The possible legal implications of Mrs Cargeege's case that unfortunately never materialised would have given clarity to the responsibilities of compliance. However, the lack of a social model paradigm in the supporting institutions, and then Mrs Cargeege's untimely death, meant that once the case was dismissed, the building sector carried on with its established practice, on the whole, of ignoring minimum standards that support universal design and universal access.

Notably, many, many buildings have been erected since, with permanent or temporary ramps, or other facilities that do not comply with minimum standards. Arguably, this is now the norm. In terms of transport facilities, these include the Bus Rapid Transit (BRT) station nearest to the Constitutional Court and the new pedestrian bridge over the M1 highway in Johannesburg. There are other examples all across the country.

Mr Simbuku did not have the life to which he was entitled. Because people of his race and class have historically never had such choices or opportunities, neither he nor his family would have known that he was entitled to them. Despite all the legislation described in Mr Simbuku's case, where compliance has taken place, it appears to be out of choice rather than enforcement or an understanding of the law, and is absent in Cofimvaba.

Equally, people with disabilities do not seem to have been demanding the level of equality that the Constitution implies. Mrs Cargeege's case illustrates how in some circumstances, the system of obtaining justice may not be working. Have others tried? Or is the system of society and government a juggernaut at full throttle, with its vast experience of institutional discrimination, its years of honing exactly how to exclude, divide and separate, simply able to carry on in the same direction, ramping into fifth gear, decimating these so-called rights – like a butterfly hitting the windscreen of a speeding vehicle?

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND AND SCOPE

The focus of this master's dissertation on *Universally accessible public transport systems: experiences with implementation in the thirteen integrated public transport network municipalities in South Africa* is two-fold. The first is to evaluate the success, or otherwise, of the Implementation Strategy to Guide the Provision of Accessible Public Transport Systems in South Africa (DoT, 2009), known as the Accessible Public Transport Strategy. The second is to evaluate the implementation plan, a Universal Design Access Plan (UDAP) (DoT, 2013b), a tool developed by the DoT and implemented by 13 municipalities for their public transport systems. The DoT Universal Design and Universal Access Directorate (UDA) monitors both the strategy and the plan. The author of this dissertation is responsible for the development of the implementation tools, the complaints system and research connected with it.

The UDA is one of the directorates in the Public Transport Network Development Chief Directorate (PTND), in the Public Transport branch of the DoT. The UDA developed the UDAP to provide evidence of the implementation of the Accessible Public Transport Strategy, which is implemented through a programme called the Enabling Environment Programme run by the author, who is also the director of the UDA. The Enabling Environment Programme is in turn based on a programme of Action developed in 2010 by the author, (PTND, 2010). Universally accessible public transport is part of a broader project on the development of Integrated Public Transport Networks (IPTNs). The development of UDAPs forms an integrated but distinct part of the municipalities' operational plan for the IPTN. The municipalities in receipt of the Public Transport Network Grant (National Treasury, 2010–2020), are responsible for developing their municipal UDAP using the tools developed by the UDA. They report on progress with implementation to PTND. The DoT, in turn, reports on progress to the Presidency as part of the reporting on the White Paper on the Rights of Persons with Disabilities (WPRPD) (RSA, 2015c). The Presidency reports to the United Nations (UN), on behalf of the country, on progress with implementing the UN Convention on the Rights of Persons with Disabilities (UNCRPD) (RSA, 2013a).

In 2020, it was 11 years since the release of the Accessible Public Transport Strategy (DoT, 2009) and 13 years since the Public Transport Strategy (RSA, 2007b) called for public transport to become 100% or universally accessible. The National Land Transport Act, No. 5 of 2009 (RSA, 2009a) provides the legal references for both documents. It was 20–21 years since the publication of the recommendations of the Moving South Africa study (MSA) (DoT, 1999) and the enactment of the Promotion of Equality and Prevention of Unfair Discrimination Act, No. 4 of 2000 (PEPUDA) (RSA, 2000b). Universal access to services, through universal design, supported through the implementation of minimum standards, are instruments of this legislation (Chapter 2, Sections 9a–c). Its purpose is to bring about disability equality

in the public and private sectors. MSA (DoT, 1999) anticipated that all transport would be universally accessible within a 20-year timeframe, as observed in the Foreword.

Universal design is contingent on the performance measures of equality, dignity and safety of everyone in society. The Bill of Rights, contained in Chapter 2 of the Constitution of the Republic of South Africa, 1996 (RSA, 1996b), explicitly references these performance measures (Sections 9, 10 and 24), which characterise the social model of disability. The definition of disability in the UNCRPD is premised on the social model of disability (UN, 2006: Article 1), which South Africa signed and ratified in 2007. The social model, introduced through the Integrated National Disability Strategy (INDS) in 1997 (RSA, 1997a), and as a legal instrument through PEPUDA in 2000, was re-adopted as a tool for implementation by Cabinet in the WPRPD (RSA, 2015c: Part 1, Section 1.2.3).

Through the implementation of integrated public transport networks, the DoT is one of the South African government departments attempting to deal with the spatial transformation of cities, towns and villages. Universal access to public transport is one of the components of such transformation. This, in turn, is guided by national government policy on social inclusion, an element of which is disability equality. Disability equality is informed by the social model of disability, which has a strong grounding in South African politics and history.

1.1.1 Research questions

Implementation of the IPTN projects has been slow, especially over the period 2015–2020, leading to the need for review. By assessing both the Enabling Environment Programme of the Accessible Public Transport Strategy and the UDAP against the following research questions, the DoT would like to establish whether both the programme and the plan are fit for purpose:

A. Is the Enabling Environment Programme, the foundational pillar of the Accessible Public Transport Strategy, effective for the monitoring and evaluation of the Universal Design Access Plan (UDAP)?

B. Is the UDAP the right tool through which to implement universally accessible transport?

C. To what extent do compliance mechanisms exist to ensure that both (i) the Accessible Public Transport Strategy and (ii) the UDAP are implemented?

This research master's dissertation on *Universally accessible public transport systems: experiences with implementation in the thirteen integrated public transport network municipalities in South Africa* examines the implementation of the Accessible Public Transport Strategy, through studies undertaken on integrated public transport networks (IPTNs) in 13 municipalities: Johannesburg, Cape Town,

Tshwane, Ekurhuleni, Nelson Mandela Bay, Buffalo City, eThekwini, Polokwane, Rustenburg, Mbombela, Msunduzi, Mangaung and George.

The evidence for this evaluation comes from municipal UDAPs and other documents developed as part of the Enabling Environment Programme, and from the a departmental complaints system operated as a reporting mechanism for the WPRPD, which is required of all government departments through the Disability Rights Branch, which has been located in the Presidency since 2019, and was previously housed in the Department of Social Development. The UDA established and runs the DoT complaints system (RSA, 2015b).

Chapter 2, Literature Review, explores the history and origins of the social model of disability, universal design and universal access, the cost of disability and the cost of universal access. It examines indicators for measuring transport disability and inclusive transport, and provides the background to national policy and legislation relevant to implementing the Accessible Public Transport Strategy.

Chapter 3, Methodology, describes the studies undertaken in the development of the UDAP. It sets out the frame of reference for the DoT's Accessible Public Transport Strategy through the baseline assessment completed using the Inclusion and Disability Baseline Assessment developed by the World Bank (Stienstra et al., 2002).

Chapter 4, Findings, is divided into two parts. The first part evaluates the implementation of the Accessible Public Transport Strategy through the Enabling Environment Programme, the first pillar of the strategy. The second part evaluates the UDAP and its implementation.

Chapter 5, Conclusions and Research Needs are provided, with reference to the research questions.

The **Appendices** include the initial baseline assessment carried out by the UDA using the Inclusion and Disability Baseline Assessment in 2010/2011 for the development of the Programme of Action on Universally Accessible Transport (DoT, 2010), a gap analysis, and a compilation of complaints received by the UDA from 2010 to 2020.

CHAPTER 2 LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 2, the Literature Review, explains the socio-political and economic influences on the establishment of the Universal Design and Universal Access programme in the DoT in three parts:

Part I explores the social model of disability through the Disability Rights Movement, its influence on the Constitution of the Republic of South Africa, 1996 and its relationship with the rest of the world. It explains the institutional structures of the South African government and discusses recent problems. Indicators on inclusion that are used internationally are examined, including their bearing on transport disability and inclusion projects in South Africa.

Part II studies the differences between the socio-political movement that led to the social model of disability, and the socio-economic movement that led to the development of universal design. The development of both universal design and universal access are discussed in the transport field, and more broadly, the history of universal design and universal access in the urban form. The ways in which transport policy and legislation have, in particular, been influenced by the principles of universal design and universal access are considered.

Part III provides a cost–benefit analysis of universal design, addressing the cost of universal access, the cost of universal design and the cost of disability. These cost–benefit concepts are appraised in relation to the constitutional obligation of equality and participation in everyday life. The importance of cost–benefit studies is explored and weighed up against indicators to measure the movement towards (disability) inclusion and away from exclusion.

2.2 PART I: THE HISTORY AND ORIGINS OF THE SOCIAL MODEL OF DISABILITY

Part I explores the emergence of the social model of disability in South Africa and its evolution into a constitutional right. It examines indicators on disability inclusion within a health and wellness context.

In literature by South African authors, the social models of disability and universal design are sometimes referenced as Western concepts that have been adopted nationally from international practice, and are uncomfortable in relation to traditional South African cultures (Watermeyer et al., 2006; DoT, 2009). Unusually, South Africa adopted ‘disability’ as an equality issue in its Constitution, 24 years before most countries had signed the United Nations Convention on the Rights of Persons with

Disabilities (UNCRPD) (UN, 2006; Heymann et al., 2020). In 2007, South Africa was one of the first countries to sign the UNCRPD.

2.2.1 The influence of Nelson Mandela's 1964 Rivonia Trial speech

The national origins of the social model of disability can be traced to the Rivonia Trial (Mandela, 1964), a pivotal point of the anti-apartheid movement (Berghs, 2017). Although certain parts of the Rivonia Trial are more frequently quoted, an examination of the speech that Nelson Mandela made on behalf of the Rivonia Trialists refers to a significant strand of the origin of the social model of disability (Berghs, 2017; Finkelstein, 2001; Oliver, 1990). One of Nelson Mandela's penultimate phrases (1964: 27) in the Rivonia Trial speech was concerned with racial equality:

> *Above all, My Lord, we want equal political rights, because without them our disabilities will be permanent.*

During the Rivonia Trial, Nelson Mandela drew a distinct parallel between race and disability discrimination, for reasons that related to the treatment of black South Africans due to a personal characteristic. In his speech, Nelson Mandela described how the environment was the cause of both physical and psychological oppression through the system that operated it. The use of this comparison between disability and race discrimination is interesting because of the events that followed. Nelson Mandela made this statement in 1964, which was before Disability Rights, as a protest movement, emerged in the USA and Europe in the 1970s, and in the rest of the world in the 1980s, leading to the introduction of anti-discrimination legislation in the 1990s in several different countries (Gauge, 2003a).

The Independent Living Movement emerged in the USA before the 1970's (Story et al., 1998). However, this movement was not dissimilar to others, promoting independence for people with disabilities elsewhere in the industrialised world in Asia, Europe and the Americas (Kose, 1998). The Independent Living Movement inspired a different approach to design, which became known as 'universal design' (Lifchez, 1987: 3). The Independent Living Movement was not the same as the rights-based protests that took place in government buildings in the USA in the 1970s (Shoot, 2017). The importance of the Rivonia Trial speech in the history of the disability movement nationally is that it firmly established the social model of disability not as an import from the Global North to Africa, but as an African export to the Global North. The social model of disability subsequently paralleled the development of the Black Consciousness Movement (Berghs, 2017).

Mike Oliver (1990), an academic in the United Kingdom, discussed disability in the context of the Industrial Revolution (1990: 25) and alluded to a different, more inclusive societal integration of disability in pre-industrial society. It is quite possible that the views that Nelson Mandela (1995) expressed in the Rivonia Trial speech were based on a pre-industrial approach to disability that South Africa could usefully rediscover in all its cultures (1995: 137). As Mike Oliver (1990: 12–17) states, it is inaccurate to portray pre-industrial society as a lost paradise with a utopian approach to disability. However, it is now more acceptable, due to the problems created by climate change, to explain the problems of industrialisation from a social perspective as well as environmentally and economically.

In part, as this dissertation explores the discrimination that people with disabilities experience is a result of the way that cities are planned and designed, whether transport systems or other aspects of the spatial form (Imrie, 1996). The on-going lack of spatial transformation continues to create barriers to access and inclusion, which in transport were identified in the Moving South Africa (MSA) study (DoT, 1999). MSA identifies barriers to inclusion in the urban form at the end of apartheid, and recognises barriers to inclusion in transport for people with disabilities. Furthermore, it explains barriers to inclusion for people with access needs who do not have disabilities, including children, women, elderly people and others.

The influence of the Black Consciousness Movement and global cultural influences

Some African writers on disability have acknowledged the effect of the Black Consciousness Movement on the Disability Rights Movement (Jagoe, in Watermeyer et al., 2006). This is related to the influence of Steve Biko and developments in the 1970s (2006: 51), not to the earlier reference in Mandela's Rivonia Trial speech. In 1976, roughly ten years after Nelson Mandela was imprisoned on Robben Island, with a growing number of South Africans joining him and the other Rivonia Trialists for their actions against the apartheid state, Steve Biko, recognised as one of the authors of the Black Consciousness Movement, was on trial (Woods, 1978). Steve Biko (Woods, 1978: 175–176) said:

> *…the black man is subjected to two forces…. He is first of all oppressed by the external world through institutionalised machinery and through laws that restrict him from doing certain things, through heavy work conditions, through poor pay, through difficult living conditions, through poor education. These are all external to him.*
>
> *Secondly, and this we regard as the most important, the black man in himself has developed a certain state of alienation; he rejects himself precisely because he attaches the meaning white to all that is good, in other words, he equates good with white. This arises out of his living and*

it arises out of his development from childhood……you tend to begin to feel that there is something incomplete in your humanity, and that completeness goes with whiteness. This is carried through to adulthood when the black man has got to live and work….

In the first paragraph of Steve Biko's speech quoted above, the identification of barriers to equal treatment is very evident, as well as the role of government in creating or removing those barriers. In the second paragraph, Steve Biko describes how those barriers influence the development of an individual affected by them in a cycle of negative feedback. He also refers to the effects of an endemic societal view that influences one's sense of self, from childhood, in effect forming an internal prison. The literature on the social model of disability that developed from the mid-1970s onwards (Swain, et al., 1994; Zarb, 1995; Finkelstein, 1993, in Swain et al., 1994) recognises the reasons that people with disabilities tend to feel there is something incomplete about their humanity. This is amplified through the 'medical model' of disability. The transition from the International Classification of Function (ICF) and Disease used by the World Health Organization between 1980 and 2002 (WHO, 2002) signifies an international change that was by this time already reflected in South African legislation (Gauge, 2003a).

The apartheid government framed Black Consciousness as a danger and part of the communist threat to the existence of the state (Mandela, 1995: 577; Woods, 1978: 31). From a psychoanalytical perspective, the approaches that Nelson Mandela, Steve Biko and others took in developing the Black Consciousness Movement are entirely normal and justifiably rational. Melanie Klein (in Mitchell, 1987) and other psychoanalysts based the notion of human development on Sigmund Freud's, widely seen as the father of the psychoanalytical approach (Alder et al., in Brown, 1961). These authors explain that any human is striving to make sense of the world in which they live. An internal 'sense of being' influences whether the environment then allows that person to grow and flourish, or restricts them from doing so. This experience of the world then shapes a person's development.

Of relevance to the global psychological barrier towards disability is that its origins are evident in language, culture, religion and fairy stories (Oliver, 1990; Pointon & Davies, 1997; Gauge, 2003a). No culture appears to be exempt: African cultures demonstrate evidence of this type of discrimination as well as others (Mutwa, in Gauge 2003a). In Europe, disability discrimination reached a pivotal point under Adolph Hitler's Germany (Evans, 2004). In 1939, Adolph Hitler ordered the Mercy Death Programme, a programme of testing techniques to mass-murder people with disabilities as a precursor to the mass-murder of other groups as the Holocaust progressed. It is estimated that the Nazi regime's mass-murder of people with disabilities totalled 275,000. Furthermore, the usual route of refuge to Switzerland as a neutral country was not available to people with disabilities due to general support in

Switzerland for this particular programme of Adolph Hitler's (Evans, 2004), which reflects the wider-spread discriminatory approach towards people with disabilities throughout Europe. Mike King (2014: 134) suggests that Europeans developed a deluded sense of reality during the Industrial Revolution the previous century, feeding their acceptance that the white Aryan (non-disabled, male-dominant) race was the master of destiny. The Industrial Revolution fuelled an approach to urban planning, both in transport and the broader urban form, used across both the USA and United Kingdom (Imrie, 1996), and throughout the British colonial empire, to about a third of the globe (Pakenham, 1990; Brendon, 2007).

The social model dialogue, which in turn led to a universal design dialogue, can largely be traced following the Rivonia Trial, not beforehand. The effect that the Rivonia Trial had on the disability movement was therefore extraordinary. In the Rivonia Trial speech, Nelson Mandela describes how laws that cause discrimination by one person against another create a culture of neglect and despondency. He describes how the government uses laws to reinforce neglect and despondency, necessitating poverty by removing choices, limiting options and keeping people in this state. William Rowland (2004: 8), in describing his work at the South African National Council for the Blind in apartheid South Africa, explains why the national disability movement focused on what united them, rather than on the factors that divided them:

> *Nationally, due to the lack of available resources, and a shared sense of destiny, there was a far closer relationship in the disability sector between different races. And whilst government tried its best to maintain that separation, the rising sense of power gave the leaders of the disability movement in South Africa the opportunity for collaboration across races that the rest of the population did not experience until after the end of apartheid within civil society. Although political prisoners, once in prison, they created a new world without discrimination based on race; people with disabilities did so within civil society*.

William Rowland (2004: 93) draws a distinction between liberation-style politics (for example, in South Africa, Zimbabwe and Mozambique) and dictator-style politics (for example, in Swaziland and Malawi), and describes the political situation in Lesotho as an exception, somewhere in between. He describes how, in the 1980s, the national Disability Rights Movement, based on the social model and liberation politics approach, grew from these regional relationships in southern Africa and, under the chairmanship of Zimbabwe, influenced the disability movement in the rest of the world through Disabled Peoples' International (DPI), an international disability movement that remains a force in disability rights. This was a forum for the exchange of ideas, the spread of information and the location

of the social model within communities of people with disabilities on different continents. DPI was established in Singapore in 1981, which in turn led to the UN declaring the Decade of Disabled Persons between 1983 and 1992. Between 1980 and the mid-1990s, the South African disability movement learnt from the Zimbabwe disability movement, just as the parallel liberation movements learnt from each other (Rowland, 2004: 92).

The relationship between the social model of disability and the Constitution

The national work of the Disability Rights Movement during the 1980s and early 1990s formed the basis of the Integrated National Disability Strategy (INDS) published in 1997 (RSA, 1997a), which was a response to the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities (UN, 1993). It takes a rights-based approach to disability, derived from the South African Constitution. Cabinet approved the updated version of the INDS, the White Paper on the Rights of Persons with Disabilities (WPRPD) in 2015, as a response to the UNCRPD (RSA, 2015c).

The earlier Disability Rights Charter of South Africa (SAHRC, 2002), which the disability movement had developed in 1992 as a response to the 1955 Freedom Charter (SAHO, 2018), was an influence in the development of the INDS. The Freedom Charter (SAHO, 2018) was developed by several political organisations during the 1950s and references disability. However, the references to disability contained in the Freedom Charter differed from those in the Constitution of the Republic of South Africa, 1996, suggesting a welfare approach rather than the rights-based equality approach of the Constitution.

During discussions and policy formulation for the post-apartheid state, the South African disability movement took a conscious decision on a positive inclusionary approach to disability rights, alongside other rights related to age, race and gender, rather than demanding legislation that focused negatively on discrimination and enforcement (Nkeli, in Watermeyer et al., 2006). The Constitution places disability equality within the equality clause of the Bill of Rights (RSA, 1996a: Chapter 2, Section 9), which reflects a significantly different approach from that adopted in the Freedom Charter (SAHO, 2018). Interestingly, the provision for a state of emergency within the Constitution (RSA, 1996b) contains the complete removal of the rights of people with disabilities (1996b: Chapter 2, Section 37, Table of Non-Derogable Rights). Moreover, in the preamble of the Freedom Charter (Congress of the People, 1955), disability rights are not mentioned as one of the grounds of equality; only colour, race, sex or belief are included. Further on, the Freedom Charter describes a 'welfare model' approach to disability, stating that *"the aged, the orphans, the disabled and the sick shall be cared for by the state"* (Freedom Charter, 1955: 3).

The inclusion of disability rights within a constitutional equality clause makes the South African Constitution one of only a handful of constitutions throughout the world to do so (Heymann et al., 2020). The Bill of Rights provides three key performance measures to evaluate the outcome of a disability rights intervention: equality (Section 9), dignity (Section 10) and safety (Section 24). The INDS (RSA, 1997a) includes the decision to measure progress against indicators in the Foreword. The 'separate but inclusive' approach is part of the Promotion of Equality and Prevention of Unfair Discrimination Act (PEPUDA) (RSA, 2000b). As with other anti-discrimination legislation around the world, PEPUDA describes discrimination and the concept of reasonableness in institutional transformation through both universal design (Chapter 2, Section 9a–c) and reasonable accommodation (Chapter 4, Section 21; Chapter 5, Section 25).

Including the disability rights element as 'separate but inclusive' was important to the development of a human rights approach, as observed by Jerry Nkeli (in Watermeyer et al., 2006: 58). The enactment of PEPUDA in 2000 reflects this early national expectation of moving towards disability rights. PEPUDA assigns a clear role to both the state (at any level of government) and the private sector to take active steps to promote (disability) equality, including the removal of any barrier or obstacle to equal participation, the promotion of enablers of participation, meeting all the relevant minimum standards produced by the South African Bureau of Standards, as well as providing reasonable accommodation. The Act takes precedence over all other legislation (Chapter 1, Section 5(2)), and both the state and institutions are assumed to be guilty of disability discrimination unless proved innocent, not the reverse (Chapter 3, Section 13(2)).

Difficulties with the implementation of disability rights-based legislation

PEPUDA has not had the impact that the state (or the Disability Rights Movement) intended. Only a few cases have been taken under it, and although people with disabilities have won all of them, these cases have resulted in little institutional (or other) change as a result of the legal outcomes. Sebenzile Matsebula (in Watermeyer et al., 2006: 90) identifies a national slowing down of the disability rights agenda in 2006. Colleen Howell (in Watermeyer et al., 2006) emphasises the importance of the Office on the Status of Persons with Disabilities in the Presidency as a fundamental mechanism for keeping a 'watching brief' on the disability rights agenda. Sebenzile Matsebula (in Watermeyer et al., 2006) indicates the likelihood of failure of the disability rights agenda by moving the disability rights component out of the Presidency and into line government departments, and the decline of disability rights monitoring and evaluation structures. The Presidency's report, *Towards a 15-year Review* (RSA, 2009b), describes a 'mainstreaming approach' to disability rights as the rationale behind the move of the Disability Rights Office out of the Presidency between 2009 and 2017. However, there is little

evidence that either government or the private sector took the mainstreaming approach that was expected. The Presidency's report itself anticipated that the approach taken to mainstreaming would fail, in the following statement (RSA, 2009b: 79, underlining author's own):

> *Focal points, which are meant to exist in departments in all spheres, coordinate and monitor the development of disability-related policies and programmes and their implementation.*

The change in rationale on disability inclusion that took place in the anti-apartheid movement between the publication of the Freedom Charter in 1955 and the speech given by Nelson Mandela at the Rivonia Trial in 1964 was significant. It was sufficiently significant to generate a very different future national approach to disability rights and to influence world movements. Whether or not this was intentional is not easy to discern. By the time Nelson Mandela was released from prison in 1990, he had initiated a vibrant campaign that wanted to change the world so that people with disabilities, who had been excluded, could participate as equal partners. Nationally, the anticipated approach is clear in the following quote (Mandela, 1994):

> *The new South Africa we are building should be accessible and open to everyone. We must see to it that we remove the obstacles, whether they stem from poor access to facilities…lack of transport…lack of funding…or unavailability of equipment. …only then will the rights of people with disabilities to equal opportunities become a reality*.

2.2.2 Development of indicators measuring the extent of disability rights

Implementing the Accessible Public Transport Strategy, or any other policy on disability inclusion, requires the development of indicators. This section explores transport disability, and difficulties in measuring universal inaccessibility from a legal, socio-economic, and health and wellness perspective.

Legislation on disability rights emerged in many countries around the world following the formation of Disability Rights International, triggered by the publication of the Americans with Disabilities Act in 1990 (USA, 1990). However, South Africa drew its Constitution from an earlier model, the Canadian Charter of Rights and Freedoms in 1982 (Phooko, 2017), which also includes disability within the equality clause. All disability rights legislation tends to share the same principles, namely the concepts of direct and indirect discrimination, unfair discrimination, reasonable accommodation and unjustified hardship (Gauge, 2003a). Nationally, PEPUDA contains these concepts (RSA, 2000b): 'direct and indirect discrimination' (Chapter 1, Definitions), 'unfair discrimination' (Chapter 3), 'reasonable

accommodation' (Chapter 4) and discrimination for a 'legitimate purpose', for example, based on cost or 'hardship' (Chapter 3).

Measuring disability

The *World Report on Disability* (WHO, 2011) was the first global disability report produced in response to the UNCRPD. Research gathered from 70 countries, including South Africa (WHO, 2011: technical appendices A and C) concluded that the percentage of disability in any population averages 15% (2011: 51). In the move from defining disability in medical terms to an approach of measuring function, the ICF recognises that what an individual can do (their level of capacity) is directly related to the environment in which they are expected to function (their level of performance), and that a higher level of functional performance is dependent on both the presence of enablers and the removal of barriers. The Washington Group (2016) questions have been devised to understand and quantify the degree of disability experienced in a particular environment (or country) as a result of the presence of enablers or barriers. The questions relate to a person's functional performance rather than their medical condition.

National calculations of the number of people with disabilities

The South African Census of 2011 (StatsSA, 2011) used the Washington Group questions. Consequently, both the *Profile of Persons with Disabilities in South Africa* (StatsSA, 2014b) and the *Community Survey Report* (StatsSA, 2016) are based on responses to these questions. The Community Survey (2016) provides data sets at municipal level to assist in measuring poverty and vulnerability, with the intention of helping to develop government policies on service delivery. The percentage of people with a disability is given in the Community Survey as 7.7%, a marginal increase from the 7.5% figure in the national Census of 2011. The correlation between disability and rural poverty remains high, with the Western Cape and Gauteng recording lower numbers of people with disabilities. These two provinces are the most urbanised. South African figures are thus surprising and at variance with the *World Report on Disability*, which sets 15% as the international norm for the percentage of any population to experience a disability. Discrepancies could result through the exclusion of people with disabilities living in institutions, the exclusion of children with disabilities under the age of five, or the non-inclusion of people with certain types of psychosocial or neurological disability (StatsSA, 2014b). Under-reporting on disability is common in statistical accounting (StatsSA, 2014b: Executive Summary) as a result of the barriers that people with disabilities still experience in trying to participate in everyday life (COGTA, 2009).

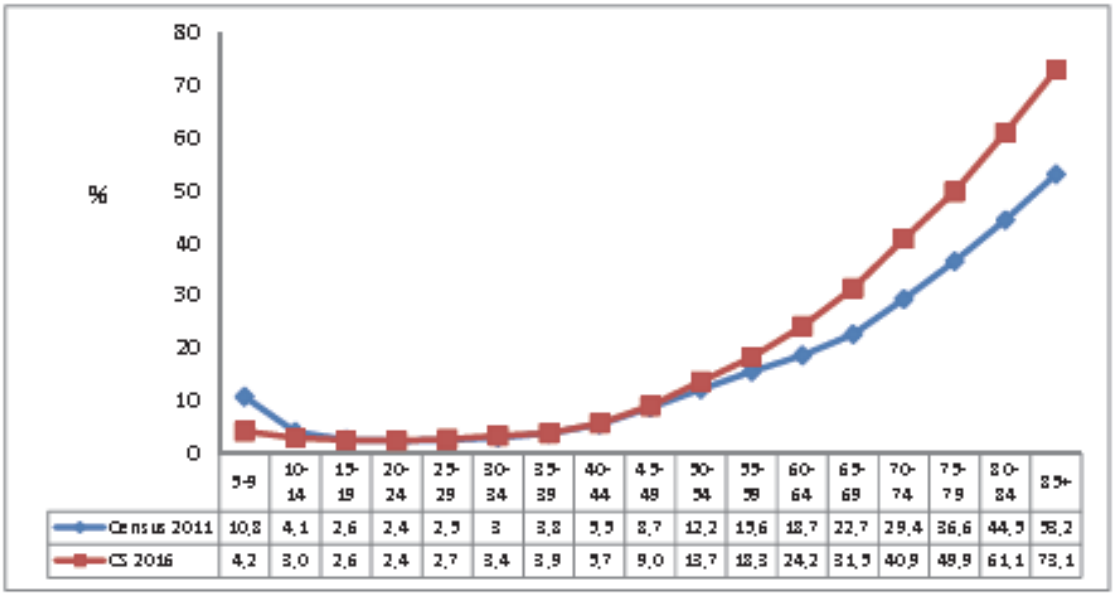
Universal access needs

A rights-based approach locates disability as a normal condition within a health and wellness model. Participation in life activities by people with disabilities, amongst other vulnerable groups, should therefore be measured through some kind of quality of life indicator, as well as the accessibility of public transport itself, to measure the 'equality of outcome' required in Article 9 of the UNCRPD.

The Profile of Persons with Disabilities (StatsSA, 2014b) uses the 2011 Census data sets to record the situation of people with disabilities. These data sets were used by the UDA to calculate the number of universal access passengers that benefit, or should benefit, from a universally accessible transport system. The National Land Transport Act (NLTA) describes 'special categories of passenger' (RSA, 2009a) as people with disabilities, elderly people, pregnant women, children and people accompanying children (2009a). Using the 2011 Census figures, 'universal access passengers' (the term preferred by representative groups) represent between 60% and 65% of the population (Gibberd et al., 2012). Research by the DoT has identified other groups of passengers who experience a lack of accommodation on mainstream public transport, including women (Mabuse, 2010), people with luggage, or those who are new to an area (DoT, 2009). By including these passenger groups with the other universal access passenger groups, the target group with unmet or only partially met public transport needs is likely to be much higher, between 75% and 85% of the total national population. It is certainly not a minority group.

The Community Survey (StatsSA, 2016) shows that disability increases with age, as illustrated in Figure (a). There is a clear correlation between age and disability prevalence: human performance starts to decline at a faster rate from around the age of 55. This is why, for universal design purposes (not for reduced cost fare packages for pensioners), the age of elderly people, in particular, is referred to as 55 and over, not 65. The age from which human performance fails to increase in South Africa is arguably 45, as Figure (a) demonstrates. This possibly accounts for people in poorer households, with less access to health care and wellness programmes, tending to age at a faster rate.

Figure (a): Disability prevelance by age



Source: StatsSA (2016)

It is also of note, and concern, in the Community Survey – Figure (b) – that the number of people using assistive devices was reported to have dropped between 2011 and 2016. StatsSA (2016) recommends interpreting these figures with caution.

Figure b: Assistive device usage

Assistive devices	Usage	Census 2011		CS 2016	
		N	%	N	%
Eye glasses	Yes	6 142 804	14,0	4 545 687	9,2
	No	37 606 365	85,8	45 071 167	90,8
	Do not know	98 223	0,2	25 221	0,1
	Total	43 847 391	100,0	49 642 074	100,0
Hearing Aid	Yes	1 243 275	2,8	282 034	0,6
	No	42 382 644	96,9	49 328 246	99,4
	Do not know	105 159	0,2	30 004	0,1
	Total	43 731 078	100,0	49 640 284	100,0
Walking stick	Yes	1 397 314	3,2	697 444	1,4
	No	42 261 918	96,6	48 916 029	98,5
	Do not know	76 301	0,2	26 969	0,1
	Total	43 735 532	100,0	49 640 443	100,0
Wheelchair	Yes	1 012 706	2,3	184 631	0,4
	No	42 574 017	97,5	49 430 137	99,6
	Do not know	84 159	0,2	26 657	0,1
	Total	43 670 882	100,0	49 641 425	100,0

Source: StatsSA (2016)

The drop could indicate fewer people needing assistive devices, but it could also indicate a lack of distribution of assistive devices by the government, leading to lower usage by people with disabilities and older people in 2016 in comparison to 2011. A lack of assistive devices indicates a lack of access to health care and rehabilitation, which would mean that people with severe disabilities are no longer able to leave their homes, unless carried, and are likely to die earlier. This has implications for access to education and transport, which in turn affects access to employment and business opportunities. The negative cycle shapes the relationship between school attendance, educational attainment and income level; it most affects people with severe disabilities living in rural areas where the barriers of an inaccessible environment are compounded by the lack of access to health care and rehabilitation.

2.2.3 Transport disability

The Community Survey identifies walking as the mode of transport most frequently used to get to an educational institution (StatsSA, 2016). Other modes of travel frequently used are minibus taxi, car and hired vehicle. In sheer volume, with 12,367,398 adults and children aged 5–24 walking to educational institutions, walking remains the most frequently used mode (2016: 37). Barriers to education and employment for people with disabilities (StatsSA, 2014a) occur through both transport and the built environment. The report notes that the lack of access to vehicles, barriers in the built environment, and the inaccessibility of information and communication all contribute, and also that the distances people with disabilities have to travel are a severe problem. All these factors are relevant to a universally accessible urban form.

The 2013 National Household Travel Survey (StatsSA, 2013) was the second transport survey of its kind in South Africa. The DoT published the first survey in 2003 (DoT, 2003). Transport disability was underreported in both the 2003 and 2013 surveys. Both studies only collated statistics relating to people with disabilities travelling to education and employment, not other trips. The questions used in the 2013 survey still reinforce exclusionary data interpretation to some extent, identifying that 22.8% were too old or too young to travel, and around 2% of the population were unable to travel because of a disability (StatsSA, 2013: 26). The implementation of accessible public transport systems should have progressed by five years in 2013, however small the impact, so that by then no person using new or upgraded transport systems should have been unable to travel because of a disability. This would constitute a form of direct discrimination for reasons related to a disability. Therefore the reason that someone may not have been able to travel, nationally, should have been **because public transport was inaccessible to them**.

The 2013 National Household Travel Survey (StatsSA, 2013; 2014a) demonstrates that, of the scholars with disabilities who were able to use transport in 2013, 2% used rail, 6% used bus and around 11% used minibus taxis or cars. This reinforces the notion that the earlier statistic that 2% of the population were unable to travel because of a disability (2013: 26) relates to the inaccessibility of the environment and transport system rather than the need to travel (2013: 29). Most learners in South Africa walk to school, whether or not they have a disability. Walking to school is likely to have a severe educational impact on learners with disabilities, as they would be significantly more tired and less able to concentrate due to the level of fatigue, which is a common symptom of physical (and psychosocial) disability. The distance required to walk to school is directly related to the location of schools and housing, which in turn is directly related to urban planning decisions.

The number of workers with disabilities travelling to work is not proportional when compared to workers without disabilities across the provinces or within metropolitan, urban and rural areas. The reasons for the skewed distribution need further exploration. Again, the most accessible forms of transport are minibus taxis and private cars, while rail is the least accessible. The inaccessibility of rail resulted in a lower percentage of rail use among workers with disabilities than among those without. There has been a noticeable increase in the number of workers (with and without disabilities) using rail transport in Gauteng, possibly demonstrating the impact of the Gautrain and the extent of the Gauteng Metrorail network. However, the majority of workers with disabilities still walk or use a private car. It is difficult to ascertain whether the increase in bus use between 2003 and 2013 was a result of the introduction of new universally accessible bus systems. The number of workers with disabilities using bus transport was similar to the number of workers without disabilities who used that form of transport, which was a greater percentage of the overall group than for other modes of travel.

Universal inaccessibility and transport

The UN developed the Sustainable Development Goals (SDGs) (UN, 2016), of which South Africa is a signatory. As a result of goal 10 (to reduce inequality within and among countries) and goal 11 (to make cities sustainable), there is greater awareness of the need to find solutions to the problem of inaccessible public transport in an urban planning context; and that both transport and the urban form are relevant. The *UN Flagship Report on the SDGs* (UN, 2018b), the first report on the SDGs from a disability-inclusive perspective, identifies a worldwide acknowledgement of the need to address urban and transport planning issues in tandem. It reports on global progress and finds that in nine countries surveyed in 2009, which included South Africa, more than 38% of people with disabilities found that facilities were inaccessible to them. Frye (2013), in a survey conducted on transport inaccessibility, found that 34% of the respondents who reported being disabled by the transport system were from

African countries, including South Africa. *Inclusion Matters* (Das, 2013) frames social inclusion of people with disabilities together with other marginalised or victimised groups. Maitreyi Bordia Das (2013) recognises disability as an identifier of people who are likely to be left behind, contributing to the negative patterns of exclusion on human capital development. The *World Report on Disability* (WHO, 2011) notes the goal for signatories of the UNCPRD to make all their transport systems accessible in totality, across the entire country (2011: 35), and recommends the approach that South Africa had already taken in legislation and policy development (2011: 218).

Disability inclusion in transport

Constitutional obligations require the use of indicators to reflect disability inclusion or exclusion. Atkinson and Marlier (2010), in a report based on the UN Millennium Development Goals (which preceded the SDGs), measure social inclusion as a method to combat poverty and social exclusion. The study defines social exclusion as the "*involuntary exclusion of individuals and groups from society's political, economic and societal processes, which prevents their full participation in the society in which they live*" (2010: Introduction), and differentiates between social exclusion and poverty. Atkinson and Marlier (2010) state that to measure social exclusion of people with disabilities and other traditionally excluded groups, their circumstances must be examined, not assumed. They show how statistical data can highlight institutional discrimination caused inadvertently by seemingly neutral policies, and emphasise the importance of evaluating which groups of vulnerable people are more at risk of poverty in different circumstances. Finally, they outline the importance of using the same definition of a human factor such as disability when making comparisons between different data sets. Access to transport is a measure of being able to get to work and having access to goods and services (2010: 11). Providing free transport is suggested as a way to change income levels, in a similar way as access to free child care.

Researchers in the USA proposed the use of a measure of poverty to determine economic benefit (Fremstad, 2008). They identified the need for a tiered approach to distinguish between poverty (low income) and material deprivation. They recognised the difficulties of correctly capturing poverty rates in groups of people with disabilities. The poverty measure that was proposed distinguishes between household poverty rates and state-level measures of wellbeing. The researchers showed that because people with disabilities are less able to access work, they are more likely to use state benefits as a source of income. Although disability seldom features in policy discussions on poverty, people with disabilities are generally amongst the poorest. The research found that people with disabilities living alone and on the poverty line in the USA in the 1990s; need twice the annual income as people without disabilities, to experience the same level of hardship as people without disabilities (She & Livermore, 2006). Having a disability thus renders an individual twice as poor. They found that people with disabilities are less

likely to find work (Fremstad, 2008), leading to transport poverty (the inability to have access due to an inability to afford the fare), a poverty measure requiring subsidy (2008: 8).

The *UN Flagship Report* (UN, 2018b) draws on data from the 2006 Vietnam Household Living Standards Survey, showing that 17% of people with disabilities are poor, compared to 15% of people without disabilities. If the additional living costs of having a disability are included (for example, higher medical bills, cost of assistive technology or special transport), poverty rates rise to 23–25%. Furthermore, the younger the age from which disability occurs, the greater the poverty rate, rising to 31% (2018b: 60). In a study on eight countries, the *Flagship Report* identifies that the severity of disability affects the cost of living, ranging from an increase of 21–40% for people with a moderate disability, to 39–70% for those with a severe disability. It estimates a 30% increase in the cost of living for a moderate disability, and 40% for a severe disability, in relation to average income (2018b: 62). These are similar to the levels identified in a national study on the cost of disability in South Africa (Hanass-Hancock & Deghaye, 2015). National statistics reaffirm the relationship between poverty and disability (StatsSA, 2014b), compounded by lack of employment opportunities in rural areas, meaning that grants remain one of the major sources of household income. Households headed by people with disabilities are often characterised by a lack of formal housing, poor sanitation, and a lack of clean water and energy sources for cooking and lighting (2014b: xiii).

2.2.4 Problems with measuring universal access in the urban form

The goal of planning, designing and constructing a (universally accessible) public transport system is to make travel possible for people who were unable to do so, and to increase the quality of life of all residents. Difficulties remain with recognising disability equality in the interpretation of the SDGs internationally (UNDP, 2016; Stevance, 2015). In a universally inaccessible environment where disability is not simply unaccommodated, but the environment is such that there is a likelihood of people without disabilities becoming disabled, it would seem entirely necessary to attach a negative calculation to the characteristic of ‘Disability’. A current national example might be the safety of pedestrians. The environment appears to create a situation where people without disabilities have a high chance of becoming disabled. In addition to reported road deaths, the costs of these crashes are crippling the economy (Labuschagne, 2016). Reports on the safety of women (StatsSA, 2018) and other victims of crime (Roberts, 2008; SAPS, 2019) indicate that unsafe public spaces increase the probability of experiencing a life event that could have a lasting negative impact on psychosocial development, in turn leading to disability.

The *Science Perspective Report* (Stevance, 2015) proposes a disaggregation of health data in the same way that the Gini coefficient measures poverty inequality from an average baseline. The recommended index, the Disability-Adjusted Year Life (DALY) index, adjusts life expectancy according to disability. However, it does so without referencing the quality of life. The inference is to equate disability as being negative. Disability is measured as an effect, along with death, only as a negative event. This means that it cannot been portrayed purely as a human characteristic as with gender or race.

The Inclusive Economy Indicators (Benner & Pastor, 2016) describe a method for measuring economic inclusion that highlights social, economic, government and institutional processes, and the importance of developing indicators to move towards economic (and social) inclusion. The five characteristics, subcategories and indicators of this measure promote equal or equitable access and describe disability inclusion in relation to barriers to the advancement of wellbeing. However, the approach portrays people with disabilities as being passively left out of economic opportunities, rather than acknowledging active exclusion. The report distinguishes this from the apartheid system of racial discrimination (2016: 30). This assumption is at odds with the history of disability rights in South Africa. Only one indicator with a specific measure of disability inclusion is provided, focused on grant welfare (2016: 26), which if used would support a welfare model of disability. In a broader context, there is little focus on the equal economic participation of elderly people. The Social Progress Index (Nagel, 2018) identifies and measures 12 components in three categories: basic needs, foundations of wellbeing and opportunity. It focuses specifically on inclusiveness, but does not refer to disability.

The purpose of the social model of disability is to neutralise disability to an objective state. To demonstrate disability inclusion, a broader measure of the benefits of universal accessibility beyond disability alone, as a positive measure, would be required. It is highly unlikely that a disability-neutral state could be statistically acknowledged by either disability-negative targeting or disability-nebulous planning; both would perpetuate the traditional negative stereotypes. It was not possible to locate a disability-neutral index for this dissertation. However, the Human Development Index (UNDP, 2019) provides a way to link wellness to financial expenditure. Disability inclusion should form part of a quality-of-life measure, but it does not. Nevertheless, the index does contain data that can be used to measure negative chronic health aspects that directly affect an individual's quality of life and are likely to lead to disability.

Measuring disability, within a health and wellness context

In 2018, the World Health Organization (WHO) documented levels of non-communicable diseases (NCDs) around the world, highlighting their economic costs to society (WHO, 2018b). WHO indicates

that NCDs are a global threat to economic prosperity, particularly in lower- and middle-income countries (2018b: 8). In South Africa, NCDs were responsible for 51% of the total number of deaths in 2016 (2018b: 188). Other NCDs that were measured included elevated blood pressure, diabetes, obesity and those due to the harmful use of alcohol, physical inactivity, salt/sodium intake, tobacco use, ambient air pollution and household air pollution.

South Africa exceeds global targets with respect to tobacco use, obesity and blood pressure. The WHO report highlights the rise in glucose levels and obesity as problems worsened by more sedentary forms of transport, and the Department of Health confirms this (DoH, 2016). The WHO (2018b) links transport and household air pollution to the cause of most ambient air pollution, and identifies this as a particular problem in sub-Saharan Africa (2018: 18). Deaths caused by NCDs are of concern. However, countries with extremely long life expectancy (such as Japan) have NCD death rates at around 82%. A high NCD death rate indicates low rates of communicable disease, which is a positive outcome. In developing countries such as South Africa, the question is whether these deaths are, in fact, preventable through the removal of barriers to participation and basic health and safety, and whether the number of deaths by communicable disease are necessary. Levels of both communicable and non-communicable disease appear to be too high, as evident in differences in the life span of people at different income levels, or between those living in rural and urban communities.

Implementing a universally accessible urban form; a comparison between three countries

Olav Rand Bringa (in Naser & Evans-Cowley, 2007) notes that universal design is one of the most significant developments in the (urban or transport) planning spheres this century (2007: 97). Norway embarked on implementing a national universal design urban planning approach after running a series of pilot projects, in 1999 (2007: 111). The planning process in Norway, through an Act of Parliament, enables a reference group of people with disabilities to be part of the decision-making process. The Ministry of Planning has the ultimate authority for planning decisions, and the Ministry itself is committed to implementing universal design. The 431 municipalities develop local plans, which cover local transport and urban planning priorities, all of which must be universally accessible. The national master plan covers physical access to the built environment, access to facilities, and quality of life and welfare (2007: 103). The universal design concept is integrated from master planning level to local zoning requirements and acknowledges the relationship between universal design and sustainable development. In 2008, Norway published disability discrimination legislation (Government of Norway, 2008) which included the implementation of universal design, as South Africa had already done through PEPUDA (RSA, 2000b). Bringa (in Nasar & Evans-Cowley, 2007) describes the urban planning approach in Norway, identifying that the principal issues are walking distances, level of incline, and

orientation (2007: 109). All three principal issues have been addressed through national legislation since 2000. South African national standards have addressed the first two through SANS 10400 Part S (SANS 10400-S) since 2011 (RSA, 2000b; SABS, 2011).

Brazil, another BRICS country, is categorised by WHO as middle income, alongside South Africa (WHO, 2018a; 2018b). As with South Africa, disability was included in the equality clause of the Brazilian Constitution in 1988 (República Federativa de Brasil, 1988). Although Cristiane Rose Duarte and Regina Cohen (in Nasar & Evans-Cowley, 2007) indicate that constitutional imperatives are seldom met in Brazil, the country put in place measures to deal with accessibility in urban space in 2004, and published the Disability Discrimination Act in 2015 (Presidência da República, 2015). As Cristiane Rose Duarte and Regina Cohen (in Nasar & Evans-Cowley, 2007: 116–118) identify, Brazil began a teaching programme in schools of architecture nationally as an intervention to overcome difficulties in implementing legislation and improve the ability of the state to implement inclusive urban design.

The UN Department of Economic and Social Development, in its report *Good Practices of Accessible Urban Development* (UN DESA, 2016) provides a series of examples of accessible transport or urban planning in a range of developed and developing countries, and includes the IPTN MyCiti project in Cape Town as an example of good practice (Davies, in UN DESA, 2016). The report distinguishes between implementing a universally accessible transport project without reference to the urban form, and implementing a transport project that is universally accessible within an accessible urban form. To consider the effect of this lack of alteration to the urban form, Norway, Brazil and South Africa are compared.

It is not yet possible to measure the quality of life of people with disabilities, due to the lack of available national or international indicators, since NCD data serve as an indicator of a healthier and more active population (WHO, 2018b) and can be used as a proxy for disability. It is also possible to propose a relationship between the lack of knowledge amongst built environment professionals, the lack of implementation of different standards in the urban form, and growing, concerning national levels of NCDs. It is possible to demonstrate that if national legislation on urban and transport planning had been properly implemented over the past 10–15 years, most people in all the three countries would by now be experiencing a better quality of life.

As the UN DESA (2016) report identifies, South Africa, Norway and Brazil have taken, or should have taken, similar approaches to disability inclusion and access over a similar period (2007–2016), since all three countries had legislation in place to do so. Norway and Brazil appear to have implemented theirs,

despite difficulties, and extreme differences in their populations and income levels, but South Africa has not. Table (i) demonstrates how the three countries compare with respect to their NCD statistics.

Table (i): Indicators on selected NCDs for South Africa, in comparison to Brazil and Norway

Country	Measure	Brazil	Norway	South Africa
Income level		Middle	High	Middle
Gross national income (GNI)/capita	US$	$8,840	$82,330	$5,480
Total population		207,700,000	5,255,000	56,015,000
Number of deaths		1,320,000	41,000	526,000
No. of deaths as % of population	Percentage	0.63%	0.63%	**0.93%**
% GNI per person	Percentage	0.004%	1.567%	**0.01%**
Risk of premature adult death	Per 100,000 population	17	9	**26**
% of death due to NCDs	Percentage	74%	87%	**51%**
Obesity	Per 100,000 population	22	25	**27**
Childhood obesity	Per 100,000 population	9	8	**11**
Blood pressure	Per 100,000 population	23	25	24
Diabetes	Per 100,000 population	8	7	**10**
Salt/sodium intake	Per 100,000 population	10	10	**6**
Physical inactivity	Per 100,000 population	**47**	34	37
Suicide mortality	Per 100,000 population	**6**	12	12
Road accidents	Per 100,000 population	9.7	2.7	**25.9**
Pedestrian fatalities (including cyclists)	Percentage	28%	21%	**41%**
Pollution, alcohol and tobacco use have not been included.				
Source: WHO (2018b)				

Brazil and South Africa are both middle-income countries, but their population sizes are very different. There are some interesting findings. Norway is far richer in terms of the percentage of GNI per person. However, South Africa is richer than Brazil. Brazil's population is markedly bigger than that of South Africa, and Norway's markedly smaller. Death rates in Norway and Brazil are noticeably lower in 2016 than in South Africa. Both Norway and Brazil have achieved a far lower level of obesity, particularly childhood obesity. Diet may account for the lack of correlation between physical inactivity and obesity amongst adult Brazilians, as the difference in levels of diabetes between South Africa and Brazil seems to indicate. South Africa reports far lower sodium intake than Norway or Brazil, although blood pressure levels are similar, which could reflect higher stress levels in South Africa than in either Brazil or Norway.

Although Norway and South Africa have a similar suicide mortality rate, the national rate of premature adult death from NCDs in South Africa is unacceptably high in comparison to both Norway and Brazil. Despite Brazil's developing country status and lower GNI level per person compared to South Africa, its road accident fatality rate is far lower than South Africa's. This may be a result of South Africa's national inability to address apartheid planning. However, both Brazil and Norway share similar levels of pedestrian fatalities, at far lower levels than in South Africa, which appears to indicate that through implementing universal access standards in urban planning over ten years, regardless of national income level, improved urban form can contribute to preventing ill-health, disability and loss of life.

One of the differences between South Africa and the other two countries is that both Norway and Brazil have been implementing universal access legislation and standards over the past ten years. Where difficulties were evident, Brazil embarked on a national training programme, which South Africa did not do. Against the background of better disability equality legislation than in either Norway or Brazil, South Africa has introduced sufficient urban transport and planning legislation over the same period, as well as a single targeted conditional grant to support implementation. This ought to have made some discernible impact, but in comparing the three countries, South Africa's performance is worse than that of the other two countries, and its entire transport project has made no noticeable national difference to urban quality of life.

None of the sets of indicators reviewed enable a comparison of the quality of life of people with disabilities in the three countries. This is because of the lack of inclusion of disability as a neutral measure; if disability is included only as a negative measure, if evident at all. Norway appears at the top of all the socio-economic scores for human development on the Human Development Index. As a high-income country, this may seem unsurprising. However, Brazil also scores far higher than South Africa, despite a lower level of GNI per person, as Table (ii) shows.

Table (ii): South Africa's position on the Human Development Index for socio-economic sustainability, in comparison to Brazil and Norway

Measure	Brazil	Norway	South Africa
Quality of human development and socio-economic sustainability	79	1	113

Source: UNDP (2011)

There is a need for more data on the number of people with disabilities in South Africa. There is also a need for agreement to align with the international interpretation of both the definition and degree of disability. International indices on quality of life that include disability as a neutral measure are lacking. Finally, there is need for a combined measure of disability **and** ill-health to record negative or positive progress away from, or towards, an improved quality of life that includes the use of transport and the urban form.

2.3 PART II: THE HISTORY AND ORIGINS OF UNIVERSAL DESIGN AND UNIVERSAL ACCESS

Part II of Chapter 2 considers the social model of disability and relates it to universal design in the built environment, through the planning and design of the urban form, with a particular focus on transport.

Barriers to participation

The release of the national report *Towards a Barrier-free Society* (SAHRC, 2002) should have led to the use of universal design as a required solution to problems with the urban form. Universal access, universal design, compliance with supporting minimum standards, and reasonable accommodation are among the principles of PEPUDA (RSA, 2000b). Ensuring that people with disabilities can access goods, services and facilities forms part of the special conditions listed in schedule 29 of that Act (Chapter 7, Section 29, Illustrative List of Unfair Practices in Certain Sectors). It is extremely puzzling that this has resulted in so little action over the past 18–20 years. To examine why not, the Rivonia Trial is revisited.

The introduction to Nelson Mandela's book *The Struggle is my Life* (1978) describes the Rivonia Trial scene as silent – an entire courtroom listening with rapt attention to Nelson Mandela's speech. It later became known as 'the trial of the century' (1978: 9). One of the background figures was Vic Finkelstein (2008) a South African national using a wheelchair, exiled to the United Kingdom as a result of the banning order he received under the Suppression of Communism Act (Millington, 2013) for his suspected role in assisting Bram Fischer to prepare for the Rivonia Trial (2013: 2). The following paragraph describes this experience (Finkelstein, 2001: 2):

> *Now, for me, what was interesting is that when I was handed the banning order and looked at it, I thought, "Well, this is not going to make much difference to my life because most of the things I'm not allowed to do I can't do anyway – they're inaccessible. All these premises, facilities and social meetings are inaccessible anyway!" It was with this experience still fresh in my mind that I came to the UK in 1968 as a refugee and met up with the emergent British disability movement.*

Just after Finkelstein arrived in the United Kingdom, he read Nelson Mandela's Rivonia Trial speech, and the part that particularly resonated with him was where Nelson Mandela related race to disability discrimination. Vic Finkelstein's (2001: 3) reaction to reading Nelson Mandela's words was as follows:

> *Well, you could say all the same things about people who have impairments. But what does it mean if you say that without "equal political rights" identified by Nelson Mandela "our [African] disabilities will be permanent"?*
>
> *Does it mean that it's not OK if anyone is disabled by social restrictions except people with impairments? For us (people who have impairments), is it OK if our disabilities are permanent?*

> *And, if we want to remove the disablement imposed on us, why does this sound equally revolutionary to people with abilities (i.e. politicians and disability-related service providers) as it did to white South Africans? Let's face it, disabled people face the most prevalent, world-wide, persistent, resistant-to-change and endemic form of apartheid, to put it mildly, of any human group throughout the world.*

After meeting Paul Hunt, another academic in a wheelchair, Vic Finkelstein found that Paul Hunt had developed a network of contacts in the disability sector who were exploring the nature and meaning of 'independence'. Paul Hunt's network was examining the economics and design aspects of living independently, as a person with a disability, without having to rely on charity or institutional care. In the 1960s in the United Kingdom, and elsewhere in other developed countries, these ways of living were the only ways that most people with a disability could have any type of quality-of-life experience. Paul Hunt had developed a network in Europe (Rydström, 2019) and later the USA and Japan (Barnes, in Watson et al., 2012). The question for people who were part of the Independent Living Movement was, in Finkelstein's (2001: 4) words:

> *If it is that society is disabling us and therefore it is society that has to change, not disabled people…how do you change an oppressive system rather than spend fruitless time appealing to the prejudiced to cease discrimination?*

Between 1972 and 1976, Vic Finkelstein, Paul Hunt, Mike Oliver and others formed the Union of the Physically Impaired against Segregation (UPIAS) to start defining the social model of disability in academic terms (Finkelstein, 2005). In 1985, Disabled Peoples' International accepted their definition (2005: 5), and it subsequently found its way into both South African law and the UNCRPD.

2.3.1 Ubuntu, disability equality and corporate social responsibility

Maria Berghs (2017) examines the relationship between Ubuntu and disability equality. Ubuntu is a social principle found in African societies. The African Union's *Protocol to the African Charter on Human and Peoples' Rights on the Rights of Persons with Disabilities in Africa* (African Union, 2017) draws upon the principle of Ubuntu (article 3), which involves group responsibility for the whole, mutual respect and interdependence (2017: 1). The relevance of the principle of Ubuntu in the development of a national post-apartheid society requires further exploration. Expressed simply, it could be summed up by the UN's slogan for the Sustainable Development Goals, 'leave no one behind' (UN, 2016).

The phrase ‘leave no one behind’ could be as inclusive or universal as ‘nothing about us without us’ (Rowland, 2004). However, it could instead conjure up a national welfare or charity model in relation to disability, in which people with disabilities are granted access to participation through the good works of others. In effect, an approach of ‘us’ (non-disabled) and ‘them’ (disabled) is maintained, rather than making changes to economic, institutional, social and environmental models that allow disability inclusion at the level that the South African Constitution seems to require.

Internationally, disability is included and addressed within corporate social responsibility (CSR) programmes. Marco Fasciglione (2014) notes the friction between a rights and a welfare model (2014, 191). This begs the question of whether in South Africa, a CSR approach is aligned to the Freedom Charter, rather than to the Constitution itself. In trying to understand why the adoption of the social model of disability in the Constitution and right-based legislation has failed to create the kind of change that seems to be required, Finkelstein (2001: 12) indicates:

> *It is worth remembering that models are not explanations. It’s like putting a model aeroplane together and placing it into a wind tunnel to gain insight into how it functions under different conditions. The model will not explain how an aeroplane flies. The social model does not explain what disability is. For an explanation, we would need a social theory of disability.*

An identifiable problem with the social model of disability is that it appears to exclude people without disabilities (Hurst, 2005). In an ableist world, the only way to remove barriers for people with disabilities is if people without a disability help in doing so. If people without disabilities are excluded from a sense of the right to equal participation, the motivation to change is limited.

The South African Constitution recognises the social model of disability. Why have people with disabilities taken so few legal cases? Given the length of time and the effort necessary to create change, and the typically shortened life span of people with disabilities, especially in disabling circumstances; the complainant might die before society changes, as Mrs Cargeege's case illustrated (as discussed in the Foreword). If the future generation (of people with disabilities) is not able to experience what it means to have their rights, will their rights effectively cease to exist? If the government, business and society, responsible for those rights, are also responsible for informing people with disabilities about their rights, and are having to change as a result, what is the incentive for the government, private sector and civil society to do anything at all? In the aftermath of the Life Esidimeni events (Makgoba, 2017), the social consequences of not preventing any tragedy are worthy of consideration. Life Esidimeni was a community care project in Gauteng province. The provincial government wrongly discharged an

unknown number of extremely vulnerable people with psychosocial disabilities into the community, without proper assessment or support. Even today, it is not known how many of them died. The case was reported to the UN in 2018 (UN, 2018a).

2.3.2 Universal design and designing for the disabled

Although Vic Finkelstein's knowledge of life under apartheid was relatively unique in the United Kingdom at the time, the Independent Living Movement was not (Finkelstein, 2001). While Hunt (2001: 4) was exploring independent living in the USA and Europe, groups in Asia and Latin America were working on aspects of a similar philosophy. Tactile paving, which is used by people who are blind to assist them to navigate independently in the built environment, began to be used in Japan as early as 1965 (Mizuno et al., 2008). It is now used worldwide to act as a tactile warning at the edge of a dropped kerb, serving as a warning to everyone, not only to blind people. Earlier work in Japan suggests far earlier global acknowledgement of universal design than is generally reported. Although the principles of universal design were developed in the 1980s and were implemented through disability rights legislation in many parts of the world in the 1990s, the precursors to this form of design were already evident in California in the 1960s and 1970s.

Two incipient universal design movements are identifiable: one in the 1960s and the other in the 1970s. The first, in the 1960s, was a social design movement inspired by Victor Papanek, an Austrian who immigrated to the USA, studied with the well-known architect, Frank Lloyd Wright, and subsequently worked and lectured. The second, in the 1970s, was a student design movement that established a laboratory in Berkley, California, where students without disabilities formed partnerships with students or advisors who had disabilities and developed designs together.

In the first of these movements, Victor Papanek (1977) highlighted the dangers of industrial design for purely economic reasons, arguing that it creates a situation in which people need more products to do fewer things. Traditional or indigenous design, apart from creating something more useful for more people to use, results in a product useable in many different ways, rather than many products useable in only one way, for a single function. Victor Papanek's writing identifies a deeper relationship between consumerism, planned obsolescence and 'apartheid by industrial design'. By learning from people of different cultures to find approaches to design that Western designers were not familiar with, Victor Papanek speaks of integrated design, and nature's principle of *"least effort, or minimum inventory for maximum diversity"* (1977: 287).

Victor Papanek divided the human life trajectory into childhood, adulthood and old age and included disability in a design approach (1977: 313). A more recent version of such an approach is the Designing for our Future Selves movement at the Royal College of Art in London (Coleman & Meyerson, 2005), which collected a substantial amount of research data based on the accommodation of older people.

Universal design requires a different approach to design, and to urban and transport planning. Its application requires a different approach to access. Universal access implies that everyone should be able to go anywhere and do anything, at whatever age, and whether or not they have a disability. Barriers to doing so should be identified and acknowledged, and plans put in place to overcome then. In South Africa, there is a constitutional expectation included in the building regulations that everyone will be accommodated, and will be able to enter, use and leave any environment, and use any product or facility (RSA, 1977, as amended, 2008). The inclusion of universal design in PEPUDA in 2000 could probably have been anticipated in the post-apartheid response to reversing the restrictions on mobility due to race, in particular, caused by apartheid planning and design.

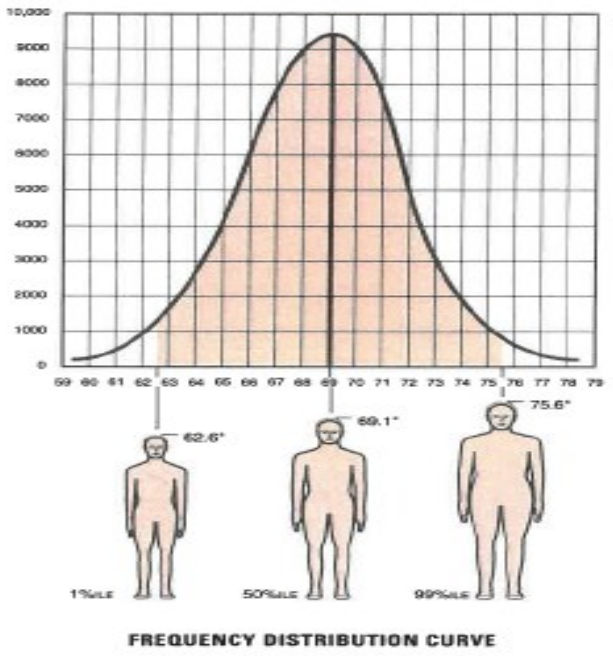
Assessing the achievement of universal design is more complex. Anthropometric studies are still useful in seeking the least disabling environment for everyone, but it is also necessary to study how the environment is used by people with disabilities of whatever kind, to create a built environment that disables everyone the least. Such an approach is not based on quantity, using a normal bell curve commonly used for ergonomic analysis (Goldsmith, 1984). Although globally, people with disabilities were included in later ergonomic research, as Alvin Tilley (1993: 10) notes, *"it is not customary to design for everyone. The few at either end of the normal curve may be so extreme that an encompassing design could be too large or expensive to produce"* This is illustrated in Figure (c). Thus the approach to developing regular design standards used by planners and designers is essentially discriminatory.

Paul Hunt's meeting with Vic Finkelstein in the 1960s contributed to the development of the social model of disability to explain how the segregation of people with disabilities in planning and design was a form of environmental discrimination. Vic Finkelstein's explanation of access barriers grew from his knowledge of the South African apartheid system. As described through a disability 'folk tale', the normal world is full of people in wheelchairs. The ceilings in buildings are lower, and people without disabilities are unable to get around because they are too tall. People without disabilities have to be fitted with helmets provided by the welfare system, because they hit their heads when going through the very low doors. These people without disabilities are difficult for doctors and health professionals (who are all in wheelchairs) to talk to, because they are bent double, with their eyes facing backwards.

Normal people, who in this analogy are those with disabilities, therefore find it difficult to communicate with them (Finkelstein, 1975).

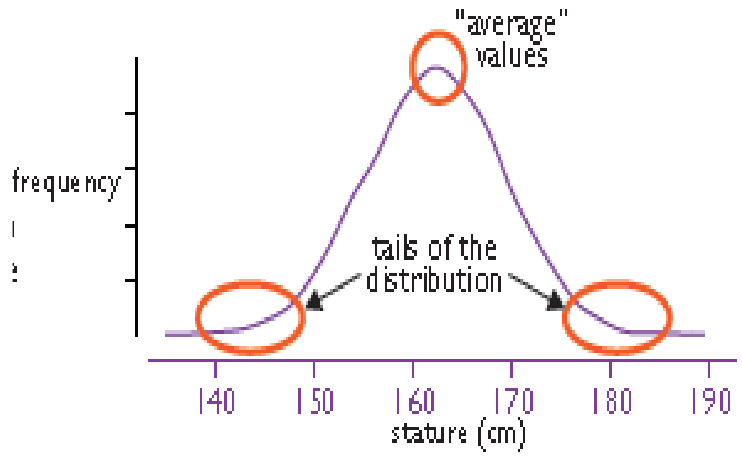
If one takes the very small people and the very tall people in Vic Finkelstein's analogy, everyone can use the space if the ceilings are higher. If the average is taken at the peak of the bell curve, as shown in Figure (d), very tall people can still not use the room. Universal design implies that, by designing to include people at both ends of the bell curve, the people at the peak are automatically included. This principle applies to the design of products as well as the built environment, transport and urban planning. It sounds beguilingly easy. However, consideration of the functional needs of everyone who can, or should be able to, use a particular environment, so that they are all reasonably accommodated, is complex.

Figure (c): Frequency distribution curve of human variation



Source: Tilley (1993)

Figure (d): Universal design and the normal bell curve



Source: National Disability Authority (2012)

The precursor to universal design, Designing for Disability or Designing for the Disabled, was, to put it bluntly, a miserable concept. Hunt (in Goldsmith, 1984) pointed out: *"People do not want to acknowledge what disability offers, that life is tragic and we shall all soon be dead*" (1984: 40). Selwyn Goldsmith (1984: 26), working in the United Kingdom, carried out a substantial amount of research through anthropometric studies with people with disabilities. His research was thorough, and although he was working with a relatively small group of people with a restricted range of disabilities (people with mobility disabilities), he based his research on a wider sample of people with disabilities than had been used in the USA.

In the USA, the legacy of the Vietnam War influenced the need for different design standards (Barnes in Watson, 2012; Welch, 1995), since a significant number of veterans returned, needing wheelchairs. Standards for their accommodation developed from the anthropometric studies that took place at the time; and given the importance of veterans, it was unthinkable that they would not be accommodated. These veterans were all male, roughly the same shape and size (Tilley, 1993), and had similar impairments that caused their disabilities because they had experienced similar types of injury as a result of landmines. They were by no means representative of the totality of people with a disability.

Application and use of minimum standards

The protest movements in America by people with disabilities demanding disability rights took place after the design movement had already begun, out of frustration at the lack of acceptance of these different design standards by mainstream architecture (Welch, 1995). The frustration expressed through protests was that, if minimum standards are nationally published but not used, the same type of power relationship between the designer as the 'authority in power' with people with disabilities results in on-

going discrimination. The introduction of civil rights legislation, which led to the national application in the USA of these standards from the 1970s culminating in the Americans with Disabilities Act in 1991 (USA, 1990), did not address the fact that the standards, in themselves, produced another kind of apartheid, in which people with disabilities and those without had to use different parts of the same building. This design approach, taken in the USA and elsewhere, was to design for people with disabilities, and people without, in parallel. The outcome was to produce a form of internal apartheid based on anthropometric epidemiology. The underlying philosophy was that whilst both shared the same space, the paths through this space could (and should) be different. This type of design was prevalent in South Africa before the end of apartheid and has remained since (ACPF, 2014), because the universal design movement has not yet started in South Africa, despite being the home to a critical strand of its origin.

In 2017, a South African Bureau of Standards (SABS) committee meeting discussed an example of this kind of parallel approach to building design for people with and without a disability. The proposal that revolving doors or security gates, with a separate entrance for people who could not use the revolving door, was considered to be an acceptable minimum standard that supports universal design. Following a complaint from the South African National Council for the Blind, the question remained, how is a two-door approach to a building (or a vehicle) for people with disabilities not exclusionary in the same manner that apartheid based on race was exclusionary? The position of SABS during the meeting was that to argue against two-door provision was anti-competitive – to which the obvious response was that if one door is anti-competitive, was apartheid more competitive because the sale of doors was twice as high? (PTND, 2018c). A further argument would be that if everyone can get into, out of and use an environment more easily, will they not be able to spend more time doing what they need to do, perhaps to spend money, or study or work? In the long run, it is cheaper and more effective to standardise each door so that everyone can use it, or perhaps not to have a door at all.

2.3.3 The emergence of universal design

During the late 1980s and early 1990s in North America (the USA and Canada) some parts of Western Europe, Japan and Australia, dialogues on architectural design led to the development of a variety of concepts of ‘universal design’ (Welch, 1995) or ‘inclusive design’ (Bright & Di Giulio, 2002). Other terms that moved the concept from ‘designing for the disabled’ (Goldsmith, 1984) to universal design and universal access included ‘designing for accessibility’ (Centre for Accessible Environments, 1993), ‘trans-generational design’ (Pirkl, 1994), ‘environmental access’ (Grace, 1995) and ‘barrier-free design’ (Holmes-Siedle, 1996). These design approaches moved from exclusion, through an approach of designing for disability as a form of tokenistic inclusion, to design based upon universal design

principles. The philosophy moved from designing for people with disabilities and people without, as separate groups, to designing separately and then adapting the design where people were different, and ultimately to studying the characteristics of all building or product users, and working to find a design that would accommodate everyone, as far as possible. As technology develops, what is considered possible will also change.

Victor Papanek (1977) explains that whether we have a disability or not, we will grow old; the world looks very different when we are weaker and vulnerable, and it is full of younger people who do not really want to look after us. As the cost of care and transport rises against a fixed income (Gibberd, 2018), unless we plan and design an environment in which we need less help and can be more independent, we become prisoners in our homes, or passive recipients of care at a price. The disabling approach to (industrial) design was at the heart of the emergent social model of disability (UPIAS, 1981).

The second movement, the Independent Living Movement, took place in Berkeley, California. The school of architecture at Berkeley developed a different approach to design, based on the notion that architecture had been used to remove certain groups of people from society (for example, prisons and asylums) and experimenting with developing a reverse approach to purposefully include people (Lifchez, 1987). Both disability and design academics in the USA, Europe, Asia and the Americas provided a rich ground for cross-fertilisation of ideas, through the Independent Living Movement network, leading to both the development of disability rights and universal design principles. Ron Mace (Story et al., 1998), with another team of academics, took these and other types of ideas to a logical conclusion by challenging designers (and planners) to design with everyone in mind, regardless of life situation and stage of life. The principles of universal design can be contextualised merely as design principles alone, but they cannot affect the world we live in without being applied to the planning of cities, buildings and product design. During the late 1990s, as countries began to implement disability discrimination legislation, questions emerged on whether the scope of research for minimum standards supporting universal design was sufficient. Australia produced a suite of standards with a different approach to research to include children with physical disabilities (Standards Australia, 1992). In the United Kingdom, the first inclusive British standard was developed and published for both egress (British Standards, 1999, revised 2008) and access (British Standards, 2001, revised 2009–2010, 2018a & 2018b). The widest range of people with disabilities ever sampled in the United Kingdom took part in the research. A committee was formed to discuss and agree on the standards, consisting of experts who had worked with the (British) social model of disability for some time.

The two global movements, the disability rights and the universal design movements, eventually came together in the UNCRPD. In 2011, an international standard, ISO 21542 (ISO, 2011) was published amalgamating the research conducted throughout the world and making these standards available to countries that could not undertake the same level of research. This international standard was adopted by the South African Bureau of Standards to augment SANS 10400-S (SABS, 2011). Where there is a difference between ISO 21542 and SANS 10400-S, Part S applies unless it can be proven that the standard on universal design in ISO 21542 is better. There are some areas where SANS 10400-S is better: thresholds must be level at a doorsill, step-free access is required, and distances and gradients are more inclusive. PEPUDA (Chapter 2, Section 9a) stipulates that in any standards adopted, the level of access may not be made worse but can be made better. SABS is thus not permitted to adopt a worse standard, and these elements of SANS 10400-S can therefore not be replaced by ISO 21542. The confusing nature of this process is inevitable in standards development.

2.3.4 The application of universal design in urban and transport planning

Both teaching and learning about universal design require a particular legal focus due to the inevitability of long-term decision-making. Although the standards, once agreed, are similar regardless of whether a rights or a welfare approach is used, the philosophy of application is different. Designing for the Disabled results in the planning and design of environments in which people with disabilities may or may not be excluded. Even if people with disabilities are included, this probably does not mean that they have an equal experience. Universal design results in environments where people with disabilities participate as equals. Thus the manner of application of standards differs depending on whether a rights or a welfare approach is used. Unconsciously, discriminatory decisions can be made without a designer (or planner) realising that their decisions will result in an environment that directly discriminates against people with disabilities.

This is especially important in South Africa due to the legislative framework. In law there are, or should be, legal consequences for discriminatory planning and design practice if similar case law in other countries were to act as a reference. The legal case that caused the change in Australia is very clear (Australian Human Rights Commission, 1997). In both transport and urban planning, the most important standards are those affecting distance, gradients (topography), levels and surface type. The ease of applying these standards in design is greatly affected by their prior use in the planning process (Nasar & Evans-Cowley, 2007; UN DESA, 2016), and there are cost implications, which are explored in Part III of this chapter, because the cost of inclusion at a later date is much more expensive.

Importantly, transport and urban planners need to understand the principles of universal design, and to use them as a matter of course, so that development is as cheap as possible (Walker, in Zarb, 1995). These standards have a resounding effect on the efficiency of the built environment to respond to the human form. Because of the focus on car culture and car-based planning, standards for humans, whether with or without disabilities, are often compromised, affecting their safety, equality and dignity. There is still a tendency to plan and design for the single male between the ages of 20 and 55, with no children and without a disability. The outcome is evident nationally, in the majority usage of built (public) environments by this group, and the growing lack of safety and security for the majority of the population, which is everyone who is not a single male, between the ages of 20 and 55, with no children and without a disability (StatsSA, 2018; Vanderschuren et al., 2019).

The Integrated Transport Planning process in South Africa now addresses universal design, minimum requirements for which are published in terms of the National Land Transport Act (DoT, 2016b). This is not same as using minimum standards that support universal design. Universal access consists of two parts: universal design and reasonable accommodation. Through applying universal access as a minimum requirement, universal design becomes the precursor. The minimum standards of National Technical Requirement 1 (NTR 1) on pedestrian crossings prescribe that the gradient of a ramp is between 1:15 and 1:20 with level landings (a level surface has a gradient of 1:50), navigable distances are well within the maximum standard of 50 m, surfaces are smooth, and obstacles are removed when crossing the road (DoT, 2016c). These standards have become the minimum requirements for public space since 2016. There are essential differences between this approach and the approach to access and mobility for vehicles, described in traditional road engineering standards (COTO, 2012). These differences have not yet been resolved, although the process is in progress to combine NTR 1 (DoT, 2016c) with the Non-Motorised Transport Facility Guidelines (DoT, 2014), which provide important guidance for traffic calming. There is evidence to suggest that making pedestrian crossings safer, without addressing traffic calming, could lead to a higher rate of accidents by creating a false sense of security (Zegeer et al., 2005).

The Draft Revised National White Paper on Transport Policy (2017: Foreword) continues to espouse the principle that transport must become universally accessible. Universal access auditing techniques (Holmes-Siedle, 1996; Bright, 2003; 2005) are required (RSA, 2015c) if there is to be progress towards implementation. These are not the same as road safety auditing techniques, for which different standards are used. Road safety audits focus on the roadside safe accommodation of vehicles, whilst universal access audits anticipate that people with disabilities or other universal access passengers will be accommodated as they walk (or cycle) to their destinations and use public transport, as well as travelling

by private vehicle. The audit outcome must influence future planning decisions and design so that planners and designers can learn from and minimise mistakes. Standards supporting universal design and the functional need of universal access users must include research with affected parties (RSA, 2015c). In transport, these are people with disabilities as well as other universal access passengers. Due to the history of apartheid, making planning and design decisions on the basis that everyone can access public space, public transport and buildings, in the same way, is an important constitutional statement.

The relevance of the UNCRPD and the development of an implementation plan

The UNCRPD promotes both universal design and reasonable accommodation (UN, 2006: Article 2), highlighting the need for universal access in communication, information, the built environment and products, as does the *World Bank Inclusion and Disability Baseline Assessment* (Stienstra et al., 2002). The UNCRPD calls for universal access to services to participate in everyday life, and promotes universal design through compliance with minimum standards (Article 9) developed through a national bureau of standards. This relationship underlines the importance of standards in overcoming architectural apartheid in planning and design.

Reasonable accommodation means that any need not accommodated through universal design is met through reasonable accommodation (RSA, 2015c). Unfortunately, it also means that there is a tendency to provide a plan, and to design and construct the built environment in a manner that is worse than the minimum standard, and then (optionally) provide reasonable accommodation, possibly to remove it later at will, which is at odds with both government policy (RSA, 2015c: Section 5.2) and the philosophy behind PEPUDA. The case studies in the Foreword of this master's dissertation show that the quality of life of people with disabilities is negatively affected by non-compliance with legislation, which is not yet measured. The financial impact and loss of credibility of those responsible for the Life Esidimeni tragedy serve as a significant example of the failure to uphold the rights of those with disabilities, who were among the most vulnerable in society, and should be noted if anything is to be learnt nationally from that experience (Makgoba, 2017).

The Accessible Public Transport Strategy (DoT, 2009) identified that in addition to the implementation by municipalities of a plan – the Universal Design Access Plan (UDAP), an Enabling Environment Programme was necessary. The DoT Universal Design and Universal Access Directorate (UDA) has identified four components for its application, which are now part of the UDAP Enabling Environment Programme. Chapter 4 explores these in the Findings.

2.4 PART III: THE COST OF UNIVERSAL ACCESS

Part III of Chapter 2 is a cost–benefit analysis of universal access in planning and development within the urban form, with particular emphasis on participation in life due to the (in)accessibility of transport (including non-motorised transport). The approach taken is that of the relative economic 'cost of social inclusion' compared with the 'cost of social exclusion', which Nelson Mandela highlighted in his Rivonia Trail speech. In order to compare Nelson Mandela's concerns more than 25 years before the end of apartheid with the situation in 2020 approximately 25 years after the end of apartheid, the same socio-economic indicators that Nelson Mandela identified were used (Mandela, 1964).

The Rivonia Trial speech describes the kinds of institutional mechanisms commonly used during apartheid, which are still discernible after the end of apartheid, to maintain racial separation and prevent progress towards social integration. Nelson Mandela gives several examples in his speech. These included the use of legislation to undermine black South Africans, education as a tool to deter academic advancement, and the cost to society of the price of separation and segregation based on race.

Given the relationship between race, disability and economic exclusion in the Rivonia Trial speech, there are defining parallels for transport and urban planning in the socio-economic indicators on inequality that Nelson Mandela provides. The speech covers the following topics: access to health and wellness, safety and security, housing and settlement development, education, employment, job opportunities and income; and discrimination directly through legislation and indirectly through institutional discrimination. Nelson Mandela examines exclusion and the trend towards it, disability and unwellness or ill-health; and he describes inequality indicators based on race. Using these measures that Nelson Mandela provided in his speech, a similar, yet contemporary comparison is provided, with particular reference to disability, but within a broader view of all-encompassing barriers to participation.

2.4.1 Access to health and wellness

The Integrated National Disability Strategy (INDS) (RSA, 1997a), in describing the situation at the end of apartheid, examined the causes of disability through a range of factors: violence, crime and war, psychological trauma, poverty (unhealthy and overcrowded living conditions), lack of information (lack of health and wellness education leading to disabling circumstances through ignorance), the failure of medical services, unhealthy lifestyles, environmental factors, accidents (whether industrial, agricultural or transport-related and sports injuries) and finally, the social environment.

The White Paper for Social Welfare (RSA, 1997b), which like the Integrated National Disability Strategy, was written as South Africa transitioned to a post-apartheid state, noted that around 8.5% of the population had disabilities, but concluded that no accurate figures existed. The national figure on disability then dropped to 5% in the 2001 Census (StatsSA, 2001), which was a surprising find given that the overwhelming majority of people with disabilities live in low- to middle-income countries (Palmer et al., 2016). In the reinterpretation of disability using the Washington Group's measure described in Part I of this chapter, by adjusting the parameters for determining the degree of disability, 5.5 million people or 14.9% of the national population have one or more disabilities (Hanass-Hancock & Deghaye, 2015). Of these, 1.2 million or 3.3% have one or more severe disabilities. Notably, the prevalence of disability rises from the age of 40, to 22.7% amongst 65–69 year olds, and 53.2% amongst those over the age of 85. These figures are more in line with the international norm. The prevalence of disabilities is expected to escalate over the coming years if the relationship between the causes and effects of disability, as identified in the INDS, has validity (RSA, 1997a). There have been notable successes in health interventions leading to increased life expectancy, due to improved medical interventions on HIV in particular. Both child and infant mortality figures have declined, particularly over the decade since 2010 (Bamford et al.; 2018; Nannan et al., 2019). Nelson Mandela's concern that the national rate of infant mortality was one of the highest in the world (Mandela, 1964) has substantially changed (StatsSA, 2019a).

Nelson Mandela (1964) referred in the Rivonia Trial speech to the 'destruction of health'. Running parallel to health improvements, and the expected rise in disability as more people live to an older age, is the probable increase in disability and chronic disease due to the growing prevalence non-communicable diseases (NCDs) (WHO, 2018b), also discussed in Part I of this chapter. The indicators listed in the INDS (RSA, 1997a) include unhealthy lifestyles, environmental factors such as epidemics and natural disasters (UN, 2015; 2016), as well as factors such as pollution (WHO, 2016), transport-related accidents (WHO, 2018a) and others, increases in crime, violence and civil unrest (Roberts, 2008; StatsSA, 2018; SAPS, 2019). Social factors created by child-headed households due to the effects of the HIV crisis, high divorce rates or single-parent households, systematic abuse of women and children and negative cultural stereotyping affecting race, gender and disability are not sufficiently documented. The causes of the 'destruction of health' described lead to higher stress, a crisis in mental health, and higher levels of anxiety and (teenage) suicide (WHO, 2018b; Roberts, 2008). The long-term implications of high levels of anxiety and stress appear to be linked in some studies to dementia in older adults by accelerating neurological deterioration associated with ageing (Datta & Arnsten, 2019).

Indirectly, poor town and regional planning (transport and urban planning combined) leads to poor health and wellness outcomes through the inclusion of barriers that prevent people even without disabilities from actively participating in everyday life (Litman, 2017; Mindell & Karlsen, 2012; Anciaes et al., 2014; 2017), apart from the effect on people with disabilities for whom such barriers already form part of their daily reality. The quality of available or affordable medical care, coupled with the ability to engage in a wellness and fitness approach to life, as well as access to rehabilitation after injury, affect the chance of, and severity of, possible disability (WHO, 2011). If access to a wellness approach to health becomes limited through cost or availability, it is highly likely that disability will increase exponentially (2011:32). Environmental and societal factors that make it difficult to achieve a wellness approach will restrict the wellness approach that individuals could take. The inability to regain control against factors that are not within their control leads to higher stress levels caused by loss of control, further reasons for a loss of wellness, and an increase in ill-health and disability.

2.4.2 Safety and security

Nelson Mandela stated in 1964 that people living in townships were afraid to walk alone after dark (Mandela, 1964). Current crime statistics indicate that both murder and attempted murder have risen every year since 2012, and overall since 2010 (SAPS, 2019), as have most other recorded crimes (including contact crimes, sex offences, various types of robbery and property crimes). Most of the population is afraid to walk or travel after dark (Roberts, 2008; StatsSA, 2017), resulting in a situation not dissimilar to a (self-imposed, but rational) curfew operated in a state of emergency. This is now a problem for more than just people with disabilities (Roberts, 2008; StatsSA, 2018; SAPS, 2019). Residents classified as vulnerable in the NLTA (elderly people, children, people with disabilities, pregnant women and people accompanying children) are afraid to be out alone at night, and increasingly fearful of using certain forms of public transport (StatsSA, 2017; Vanderschuren, 2019).

Although this may be due in part to the failure of the police to manage crime so that environments remain safe and secure (SAPS, 2019), the effectiveness of the police aside, security in public space in the planning and management of the built environment is one of several governing factors (Luymes & Tamminga, 1995). These factors are, or should be, within the control of municipal authorities (RSA, 1998b; 2000a). However, the design of cities and the justification of safety in transport planning appears to be focused mainly around private vehicles. Despite the risk to pedestrians and cyclists of closing off side roads (Ribbens et al., 2008), the reverse appears to be taught as a road safety technique in engineering (Burger, 2013).

Planning decisions that prioritise car use only cause dangerous road environments, forcing pedestrians into hazardous situations that are unsafe for walking, especially for an elderly person or someone with a disability (Ribbens et al., 2008; Thobela & Gibberd, 2019). This is at odds with government policy that encourages walking and cycling. Pedestrians have the right of way at intersections (RSA, 1996c). By removing these intersections and blocking off roads, pedestrian rights are compromised. The term 'jay-walking' is commonly given as a reason for the high number of pedestrian fatalities (PTND, 2020). Registered national vehicle ownership figures have seen a steady increase since 2019, from 6,074,000 in 2000, to 9,134,000 in 2010 and 11,964,000 in 2016 (ITF, 2018); however, in both the 2003 and 2013 National Household Travel Surveys (DoT, 2003; StatsSA, 2013; 2014a), most commuters are pedestrians and public transport users, and have to walk in environments that are not suitable for their use. Moreover, new pedestrians, who should be encouraged, either cannot or should not walk because of the hostile nature of the public walking environment.

2.4.3 Housing and settlement development

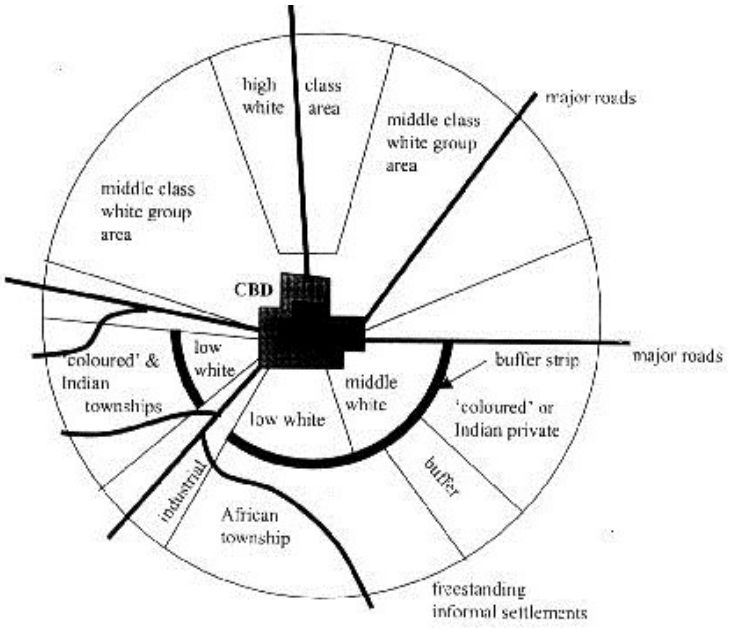
People with disabilities have long identified the relationship between housing and transport as a significant barrier to freedom (Lucas, 2010; Szporluk, 2015; Rickert et al., 2017). This continues to be the case due to the post-apartheid planning decisions to situate low-cost housing (with specially adapted housing units for people with disabilities within these single-dwelling-per-plot settlements), on the outskirts of townships, which are themselves on the outskirts of town (Hunter & Posel, 2012). Thus it is both the design of the low-cost housing settlement itself and the distance from 'live, work, shop, play (and participate)' opportunities (COGTA, 2016) that are of concern. The standards used pose an additional concern, as neither the typical RDP unit, nor the concepts for developing settlements, use standards based on the access requirements of people with disabilities (Osman & Gibberd, 2003), despite the findings of the South African Human Rights Commission (SAHRC, 2002) and its oversight responsibilities in relation to PEPUDA. Of great concern is that the current focus on secondary cities (John, 2012) still does not deal with their universal planning, design and accessibility.

The buffer zone in all cities was owned by the municipality during apartheid. The existence of these buffer zones contributed to creating long travel distances and dispersing city development (Horn, 2010; Beg et al., 2014; Joseph & Karuri-Sebina, 2014). The logical place for post-apartheid municipalities to have located residential development for people with limited access to private transport would have been to position it close to existing public transport routes within the municipally owned buffer between township and town. It would also have been logical to develop settlement patterns and housing types using minimum standards that support universal design, so that it would be easier to locate access to 'live, work, shop, play and participate' services by means other than a private vehicle, at whatever age,

or with whatever level of functional capability. Although other housing and settlement options are available in the mix of proposed settlement developments (Joseph & Karuri-Sebina, 2014), thus far the traditional RDP model has been the most reused, with little appreciation for measuring the disabling effect of its use (Osman & Gibberd, 2003). Other types of housing development for middle-income earners have not reduced barriers to access for people with and without disabilities alike. These have increased due to the development of security estates and faster, wider roads with higher volumes of traffic (Thobela & Gibberd, 2019; Landman, 2004).

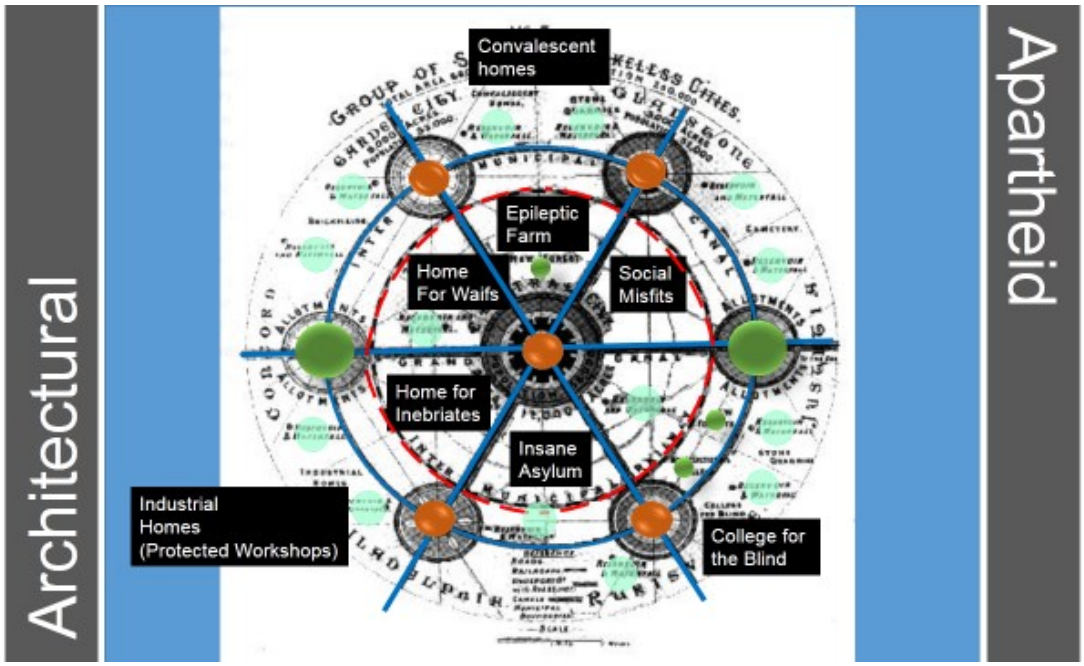
Industrialised Victorian urban planning entrenched the placement of institutions at the edge of settlements (Imrie, 1996). As Rob Imrie (1996: 123) points out, the barriers that were used to achieve segregation in Victorian times, such as roads, rivers (canals) and railway lines, were similar to those used in South Africa during apartheid to divide neighbourhoods, as shown in Figures (e) and (f). In recent years, although the DoT identified public transport corridors from city centres to townships in Gauteng, a pattern of misalignment between transport and planning has emerged with the loss of control of planning approval, spreading residential development outside of city centres where transport services already exist or are to be provided, as shown in Figure (g).

Figure (e): Apartheid city planning



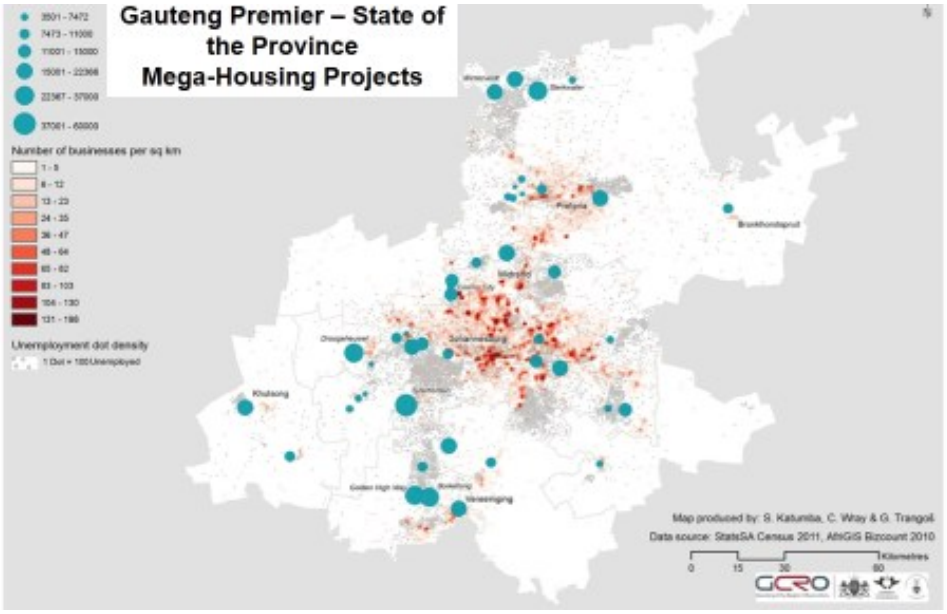
Source: Napier (2002)

Figure (f): Victorian Garden City



Source: Imrie (1996)

Figure (g): Evidence of misalignment between transport, business development and residential planning



Source: Cameron (2015) based on Turok, 2020

2.4.4 Education

The number of children with disabilities in South Africa is likely to be in the region of 11.2% of the total child population, using the Washington Group's measure (DSD, 2012). Nationally, an indicative

figure of either 500,000 (DBE, 2015) or 600,000 is used to estimate the number of children with disabilities that are not in school. The exact figure is not known (Human Rights Watch, 2019; SAHRC, 2018). The White Paper for Social Welfare (RSA, 1997b) identified that 50% of children with disabilities were not in school at the end of apartheid. This percentage has reduced since the end of apartheid. However, it is concerning that learners and scholars with disabilities not attending some form of education rose from 21% in 2011 to 24.4% in 2016 (Presidency, 2019). Actual expenditure on school transport for learners with the most profound disabilities has increased, with the allocation of a conditional grant since 2016 (UNICEF, 2018). Over half walk to school; others use hired vehicles or minibus taxis (StatsSA, 2016). There has been an increase in the number of learners with disabilities enrolled in an educational setting (RSA, 2019), but it is notable that accessible transport continues to be identified as a key concern (2019: 14) despite the provision of additional funding. Over a similar period, the drop-out rate for learners increased from 20.4% to 28%. Of this group, the percentage of non-attendance for learners and scholars with severe disabilities rose from 20% to 30% (Presidency, 2019). Statistics show that there is a higher proportion of out-of-school learners with disabilities in urban areas than in non-urban areas (StatsSA, 2016). Given the general move towards urban or city living, it is disappointing and concerning that cities are apparently not becoming sufficiently accessible for children with disabilities to be able to get to school.

Education White Paper 6 on Special Needs Education (DBE, 2001) promotes the accommodation of children with disabilities in mainstream schools, full-service schools or special schools, following a proper assessment for additional teaching assistance. However, many children are not able to access assistance or even assessment (Human Rights Watch, 2015; Fish-Hodgson & Khumalo, 2016). The number of special schools has grown; although this could be practical in the short term, it seems at face value to be out of step with a policy of mainstreaming inclusion. Given that it is more cost-effective to include children with disabilities in mainstream schools, with the right support (UNICEF, 2018), why is the institutional system preventing change? Other research highlights that children attending special schools in rural locations either do not attend because the schools are too far away and there is no transport, or the education standards are low. Schools in both urban and rural locations often do not have water or other basic services and lack teaching methods suitable for inclusion (Human Rights Watch, 2015; Fish-Hodgson & Khumalo, 2016).

The last national Census in 2011 (StatsSA, 2014b) identified that the highest proportion of people with disabilities aged 20 years and older, with no formal education, live in traditional rural communities, regardless of the type of disability, and these findings were supported by Hanass-Hancock and Deghaye (2015). The Department of Higher Education and Training indicated that the intake of learners with

disabilities in higher education was only 1% in 2016 (DHET, 2016). The convergence of low levels of tertiary education, rural poverty and disability is a characteristic supported by other national and international (educational) studies. There is a strong relationship between people with the most severe disabilities and the most inaccessible parts of the country (WHO, 2011; Hanass-Hancock & Deghaye, 2015). Given the growing number of youth without formal education and without disabilities, which has risen to 55% (RSA, 2018; StatsSA, 2019b), there appears to be a profound relationship between disability and inequality as a negative indicator of future development. This is one of the reasons why it is important to evaluate progress on (disability) inclusion, as Mandela (1964) and the INDS (RSA, 1997a) identified.

More targeted interventions are needed, particularly in rural areas, due to the cost implications for transport. This might require dedicated universally designed transport services for rural areas to feed these schools directly, rather than universally designed mainstream services, until a better level of geographical inclusion is achieved in rural areas. If universally designed vehicles are used in the targeted services, these vehicles could be used for alternative transport services as well as safely transporting scholars with disabilities. In that way, the economic sustainability of the service could become more realistic and less dependent on government funding alone (DoT, 2020).

2.4.5 Access to employment, job opportunities and income

The escalating unemployment rate in South Africa is of national concern (StatsSA, 2019b; StatsSA, 2016). The Employment Equity Act (RSA, 1998a) should have ushered in changes in the approach to employing people with disabilities, yet their employment rate has remained static at around 1%, inclusive of all employment levels, in both the public and private sectors (Dube, 2005; Deglon, 2019), although the distribution statistics in terms of gender and race have changed considerably. The target percentage of people with disabilities in employment with designated employers should stand at 2%, rising to 7–10% by 2030 (SAHRC, 2017). The number of people with disabilities who are in learnerships has increased, although this has not led an increase in employment (StatsSA, 2014b; DSD, 2015; Ariefdien, 2016), and the number of people on disability grants has risen (National Treasury, 2019b).

The White Paper for Social Welfare (RSA, 1997b) identified that 1.8% of the population of people with disabilities had access to disability grants. There has been a noticeable improvement in accessing grants. One of the economic problems that South Africa now faces is that the number of people receiving welfare grants is higher than the number of people working and able to pay tax to support welfare expenditure (National Treasury, 2019b). Reports that monitor the effect of employment equity and

black economic empowerment (RSA, 2007a) often fail to include figures on the employment of people with disabilities. Until a revised approach commenced following the 2019 national elections, applicants were frequently only categorised in terms of race and gender in monitoring programmes (Deglon, 2019).

Studies on employment and workers with disabilities highlight the difficulties for such people of getting to work or looking for work, because both transport and the workplace are inaccessible (Maja et al., 2011). As with housing, the planning and design of cities directly affect the travel patterns of people with disabilities and other groups living in chronic poverty. In the employment of people with disabilities, employment equity legislation indicates that the employer should not adopt a position of 'unjustified hardship'; however, the employer may not be able to afford to convert the business premises, because the municipality approved it in its inaccessible state. If the premises are non-compliant with current standards, due to a development agreement with a private developer with no interest in implementing national legislation, and possibly advised by the national state-owned entity (SOE) of the DTIC responsible, that non-compliance with government legislation was an acceptable practice; it is unfair to expect a potential employee with a disability to bear the burden of unjustified hardship? In these circumstances, who bears the burden? The government cannot take itself to court (Nyenti, 2014). This situation causes unemployability for reasons directly related to disability, for which the potential employer is not solely responsible. The potential employer rejects the potential employee, who thus becomes the person who bears the burden of unjustified hardship.

2.4.6 Discrimination through legislation and institutional arrangement

The South African Human Rights Commission is obligated through PEPUDA (RSA, 2000b) to identify the extent of disability discrimination in society (Chapter 5, Section 28). Twenty years after passing PEPUDA, government departments should have identified legislation that specifically discriminated against people with disabilities and removed or revised these Acts (Chapter 5, Section 28(3)b(i)). The 2002 report indicates this (SAHRC, 2002). Government has introduced new legislation affecting transport and the built environment, with corresponding minimum requirements (DoT, 2016b; RSA, 2009a; RSA, 1977, as amended, 2008) and conditions for (universally) accessible transport systems, housing, public buildings and public space. However, mechanisms for enforcement have been reduced or removed (Gibberd, in Watermeyer et al., 2006), and the disability-discriminating prescripts in older legislation, such as parts of the Road Traffic Act (RSA, 1996c) and the National Building Regulations and Building Standards Act (RSA, 1977, as amended, 2008) have not been removed, as PEPUDA required.

PEPUDA takes precedence over other legislation, and provides (or should provide) a 'universal access' overlay through which to read them. However, it appears that PEPUDA remains unknown and the old Acts are used to justify unlawful (transport) planning (PTND, 2019a). As the government cannot take legal action against itself, this creates a situation where different levels of government, and supporting SOEs, cannot prevent each other from implementing legislation that is not in line with the constitutional view of equality. The subsequent implementation of access improvements to an existing building is likely to be in the region of 60% of the original cost (Castell, 2008). By including access from the beginning, Adolf Ratzka (1994) indicates that the cost would probably only between 0.0006% and 0.13% of the total cost, if any costs are incurred at all. This has created a situation in which the government has been making it extremely costly to implement its own post-1994 legislation since 2000. In spatial development planning, both the Spatial Planning and Land Use Management Act, No. 16 of 2013 (RSA, 2013b) and its precursor, the Development Facilitation Act, No. 67 of 1995 (RSA, 1995) have, or had, the potential to promote universal design in planning and to address disability inclusion (Gibberd, 2006). However, because universal design remains unknown and untaught in transport and urban planning and other built environment-related professions (PTND, 2018e), municipalities and their planning departments tend to be ignorant of the consequences of disability-exclusionary practice.

The non-implementation of policies on disability inclusion creates immediate cost-savings, even though there are long-term negative health and wellness implications, as the situation with assistive devices outlined in Part I of this chapter describes. The Presidency (2019) estimated the upfront savings on the non-accommodation of children with disabilities in schools to be around R6.5 billion. Revisiting the Eastern Cape, (Phetuka, 2019) and Mr Simbuku's situation, two out of seven people with disabilities are employed (2019: 4). This immediately provides a cost saving to the employment sector of around 71%, because no reasonable accommodation measures have to be provided for the other five out of seven people (2019: 4). The population of the Eastern Cape of working age (20–60 years old) is approximately 2,773,419 people, with a 9.6% disability rate (StatsSA, 2011; 2014b). Of the estimated 266,248 people with disabilities of working age, roughly 76,070 are employed, while 190,177 are not. If those people who are unemployed need assistive devices to work, which cost in the region of R6000 each, and 14% of this group (26,624 people) need one, the total saving through their non-issue is almost R160 million. If grant-in-aid is not claimed, this is another saving to the government (grant-in-aid is an additional grant to a person who takes full-time care of someone living on a social grant who cannot take care of themselves). Adding together items of non-expenditure, unclaimed grants and unissued assistive devices usually results in a grant cut rather than an investigation into the reasons for under-expenditure (Presidency, 2019). The government thus makes an immediate saving by not implementing

its own legislation, and the effect is to drive people with disabilities as well as their families further into disability and poverty.

In transport, by not running a bus service, the operational costs are not incurred. A 30–40% saving on the PTNG triggers a concern in the National Treasury to cancel the grant or to reduce the overall amount of money available. Given that this is the only built-environment grant with output indicators on disability inclusion, its reduction then gives the government justification for not overcoming barriers already identified on disability and social exclusion. Municipalities and provinces are then able to continue to implement old laws, regulations and standards to perpetuate social exclusion through the lack of spatial transformation, and a potentially robust mechanism to change the situation is removed. There is a strong relationship between disability and poverty, and the natural progression of discrimination is that it will worsen unless regulated (Allport et al., 1954), especially in a country that has spent such a long period honing mechanisms to do so (Mandela, 1964). It should be of concern to future generations of South Africans who, as disability comes with age, will become the victims of discrimination, and on a fixed income provided through a pension, whether from the state or another source.

2.4.7 Cost of universal design

To support universal design, a cost–benefit analysis approach, investigating costs spent on disability inclusion in programmes, is recommended (Stein & Stein, 2014). Mandela describes the 'destruction of health' within the apartheid system for excluded groups (1964: 24). Finkelstein (2001: 8) identifies the concept of 'social death' for people with disabilities as a core element of social exclusion. He describes how social exclusion results in an increasing number of people becoming invisible, not being able to take an active role in society, becoming prisoners in their own homes, and having no influence on government or society (Finkelstein, 2001). Excluded groups become passive recipients of corporate social responsibility and 'grand scale apartheid' (2001: 8) when disabilities are made permanent for a growing number of people, who may not necessarily be defined as disabled (Mandela, 1964).

Vic Finkelstein identifies the roots of (disability) discrimination in national culture as an underlying factor in the macro-economic approach that a government uses. He explains that the process of exclusion of people with disabilities intensified during the Industrial Revolution (Finkelstein, 2001). During the Victorian era, the Industrial Revolution was answerable for significant changes of approach to urban planning and development in response to the need for the mass production of products that everyone 'needed' (King, 2014; Steinbeck, 1939). As Rob Imrie (1996) points out, this created cities that marginalised people with disabilities in particular, who remained on the periphery. The Industrial

Revolution became a method of using production to exclude certain social groups and instilled a class system in most societies, based on income exclusion (King, 2014; Noonan, 1914; Oliver, 1990; Steinbeck, 1939). The Industrial Revolution either required a mass of workers to benefit a few industrialists (according to Karl Marx), or provided the opportunity for economic growth and individual wealth through mass production (according to Adam Smith). Economic beliefs aside, the world has now moved to a position of over-production, pollution and waste (UN, 2016). The SDGs, which were developed and signed by 193 nations, already propose a different approach to economic production, and in parallel require a different approach to urban development (UN, 2016).

Industrial design, which is at the heart of the manufacturing industry, requires automation or cheap labour and segregation for pure profit. Industrial design uses the average of the bell curve to develop products for 80% of society, and disallows the 20% on the outside edges from being included. This is necessary so that the patterns required for mass production can be manufactured at the cheapest possible cost (Papanek, 1977). Modern marketing techniques have developed to persuade the public to buy more products that perform similar functions and to dispose of products earlier, leading to the need to generate more and sell more. This requires the accumulation of debt to support a debt-based economy, which in turn sustains the generation of higher numbers of goods (King, 2014). As global manufacturing has become increasingly successful, too much is produced, with too much waste produced in the process. To reduce waste, a different way of raising the quality of life is indicated, more in common with pre-industrial society, with people making or growing more themselves, coupled with a life that is rich in (beneficial) choices and opportunity, rather than possessions to justify wealth and status.

The World Bank (Stienstra et al., 2002; Stein & Stein, 2014) defines the paradigm of a life rich in choices and opportunity; of inclusion, participation and access, with a clear relationship to the expectations of the UNCRPD. People with disabilities of all ages are usually left to meet their higher costs of living through their more limited income, due to the limited opportunities that industrial society offers them. As populations age, and are dependent on a fixed pension where available, or subsidisation from working children if not, the income-to-expenditure ratio becomes constrained, and the 'choices' that money can buy are reduced or removed. For people with disabilities, this is termed the 'cost of disability'. The UNCRPD positions universal access as access to a service or participation in society (Article 9), which is the result of greater choice and opportunity being available.

2.4.8 Cost of disability

In an international study on disability and poverty, there is evidence of an empirical link between disability and poverty in 97 epidemiological studies in lower- and medium-income countries, including

South Africa (Banks & Polack, 2014). Furthermore, the higher the consequence of disability, the greater the possibility that the person with a disability (and their family) will live in poverty. In order to tackle poverty, or to provide solutions to create a national movement out of poverty, it is therefore important to examine disability, and the associated inequalities and barriers to inclusion. These findings are similar to the baseline assessment in the Integrated National Disability Strategy (RSA, 1997a), which identified that poverty results in disability, and disability results in poverty. Both studies, one national and one international, 17 years apart, identify that the risk of disability is increased by the lack of access to health care, water, sanitation and education, poor nutritional status and poor living conditions.

Through analysing these groups of people with disabilities in developing countries, the kinds of economic pathways that cause (disability) exclusion, and the virtuous cycles created by systemic change that can cause marginalised groups to exit poverty (Banks & Polack, 2014), can be identified. The findings were that the education of children with disabilities rapidly boosts their chances of gaining meaningful employment, with a wage increase of 5–8% per year for each year that the child attends school (2014: 40). This then leads to a positive upward spiral affecting income and employment, health and citizenship. It was also found that rehabilitation and employment of people with disabilities in the mainstream, regardless of disability, bolsters this effect. Moreover, less money from the fiscus is required to support health and social-assistance packages. This emphasises the need for self-employment options as the most sustainable way of creating employment options. Although this is not the same as equality in formal employment, the study identifies that self-employment provides opportunities for people to be able to take immediate control and improve their quality of life (Banks & Polack, 2014).

As Vic Finkelstein (2001: 8) suggests, and Lena Morgon Banks and Sarah Polack (2014) state, by not focusing on the nexus of disability and poverty, economic growth for everyone will stall. Banks and Polack (2014) draw attention to the increasing basic life-costs for people with disabilities in addition to the life-costs of people without. South Africa has been through a ten-year period during which disability rights programmes have largely been removed from the implementation plans of government, evident in the removal of the disability rights unit to Social Development, and the economy is flailing (National Treasury, 2019a). Although this may be hard to believe, there does seem to be national evidence to support this deduction. By not addressing disability (and social) exclusion, is there a vicious downward poverty spiral of economic exclusion for an ever-increasing number of people for reasons other than disability, as Mandela (1964) indicated in his Rivonia Trial speech.

The preamble to the UNCRPD refers to the link between disability and poverty (UN, 2006). Many studies identify that there are higher costs of living to people with disabilities than people without (Palmer et al., 2016; Hanass-Hancock & Deghaye, 2015; Batavia & Beaulaurier, 2001; RSA, 1997b). This poverty gap is estimated to be approximately 30%, accounting for both lower income and higher daily living expenses as a direct result of having a disability. Andrew Batavia and Richard Beaulaurier (2001) also demonstrate the relationship between poverty and unemployment, and the severity of having a disability: a person with a disability is likely to be around 30% poorer than someone in the same circumstances who does not have one. These figures draw a parallel with those in Nelson Mandela's Rivonia Trial speech.

Finally, Andrew Batavia and Richard Beaulaurier (2001), along with many other national and international studies, consistently stress the strong link between poverty and transport barriers to access and mobility for people with disabilities and other universal access residents (Banks & Polack, 2014; Palmer et al., 2016; Rickert et al., 2017; Hanass-Hancock & Deghaye, 2015; Das, 2013; WHO, 2011; Lord et al., 2010; Roberts & Babinard, 2004; RSA, 1997b). The problems with respect to barriers in the built environment are well recognised in all these documents. Moreover, urban planning as a mechanism of change has now moved from not being recognised at all, to one that is positioned at the centre of urban reform (WHO, 2011; UN, 2018b).

At the heart of this, in South Africa and other developing countries, is the need for the government to recognise the importance of transport and urban planning, its governance and compliance. A lack of both is not unusual in developing countries, and shown by Rickert et al. (2017), and Kett and Deluca (2016). Both studies focus on the immediate and urgent situation of learners with disabilities, because every day not spent in school represents another wasted day. Yet the barriers to transport and learning are not easy to solve in the short term, irrespective of the government's commitment to do so. An examination shows that the loss of control over development planning in developing countries is a hindrance in the development of villages, towns and cities (Rickert et al., 2017; ACPF, 2014).

Nationally, the disabling factor of loss of control of development planning means that people with disabilities are noticeably worse off in parts of the city space and in underdeveloped parts of the country where planning has been more directly affected by the provisions of the Less Formal Township Establishment Act, No. 113 of 1991 (RSA, 1991). Studies on disability and poverty demonstrate a relationship between the amounts of money received by a household and the amounts of money going out. Similar studies in transport show that people who live further away spend a proportionally higher amount of their income on transport to earn that income (StatsSA, 2014a). These statistics refer to able-

bodied people, not to those with disabilities, for whom most forms of transport are inaccessible. However, similar barriers related to the high cost of living, low income and inability to travel are apparent, further demonstrating the relationship between poverty (including disability poverty) and barriers to transport.

2.4.9 Implied savings of implementing disability inclusion

As the White Paper for Social Welfare (RSA, 1997b) indicates, by not paying out benefits, the government saves 100% of the costs of providing welfare, leaving families to provide welfare support, and thereby diminishing their gross income by around 30%. If the cost of inclusion is less than 1–2% at most, the subsequent savings to the income of affected individuals would be around 28–30% provided that minimum standards are met (Ratzka, 1994; Steinfeld, 2005). This means that there would be a net saving on implementing universal design and universal access. However, because the cost outlay of the additional expenditure is from the developer or service operator, and the cost-saving is to the service user, the cost saving is not immediately obvious.

Municipalities are often suspicious of, and hostile towards, implementing universal access improvements. Another problem is the continued implementation of old roads engineering and built environment standards, leading to exponentially higher costs for reducing or removing disabling barriers in the built environment introduced through a parallel system implemented by the same municipality or by the provincial government. Despite the differing responsibilities of provinces and municipalities, grants such as the PTNG should provide a natural incentive to save funds by not allowing non-compliance with standards supporting universal design in municipal development. In turn, this should lead to reduced expenditure on health and welfare programmes (including grants), as more people can remain independent for longer, actively contributing to both society and the tax base.

The White Paper for Social Welfare (RSA, 1997b) identified that South Africa had, at the time of publication, experienced 20 years of economic decline, from around 1977, calculated by comparing the population growth rate (b) with the average annual growth rate of the Gross Domestic Product (a). Where (b) is greater than (a), the paper describes a declining economic growth rate. The paper identifies a negative poverty cycle of increasing pressure on the welfare system, lower income from taxes, and decreasing state income from savings. National inflation implies increased household expenditure for the same set of goods. More people in poverty means that families with income have to pay more to subsidise the increasing costs of people without work, and there are no savings.

Some of the broad statistics that Nelson Mandela (1964) provides in the Rivonia Trial speech have contemporary national comparisons. Those that he quotes, for which it is possible to find parallels, are:

> *30% of Africans in rural areas on salaries below a living minimum wage, 30% of Africans in towns impoverished by low incomes and a high cost of living, A monthly wage of R32.24 per month, and a 'poverty datum line' of R42.84 per month. 46% of African families in Johannesburg living beneath the poverty line. According to figures quoted by the South African Institute of Race Relations in its 1963 journal, 40% of African children in the age group between seven and fourteen do not attend school.*

Although it is not possible to locate exact figures to compare with these 1964 figures, the White Paper for Social Welfare (RSA, 1997b) and *Poverty Trends in South Africa* (StatsSA, 2017) contain some comparable figures. A record of the Gini coefficient is publicly available (World Bank, 2019). Table (iii) provides these comparable measures against national income growth.

Table (iii): Data sources comparing poverty, grants and the Gini coefficient in South Africa (1964, 1997 and 2015–2018)

Comparable measure to 1964	**1997**	**2015–2018**	
Poorest households (below the poverty line)	35.2%, of which 40% earned less than 6%	66% (2006) 55.3% (2015)	
% of children living in poverty	54%	24% (2015)	
Percentage of people with disabilities living in poverty			
Eastern Cape	No figures available	40%	Approximately 36% of people with disabilities are from low-income households
Limpopo	No figures available	30.1%	
KwaZulu-Natal	No figures available	29.7%	
Tribal areas/farms	No figures available	70% of people with disabilities live in poverty	
Urban/rural split	No figures available	73.6% of people with disabilities living outside urban areas are classified as poor	
Grants			
Elderly people	60% (1997)	20% (2017)	
People with disabilities	24% (1997)	6% (2017)	
Maintenance /care-related	14% (1997)	75% (2017)	

Gini coefficient* 53.9 in 1993	Gini coefficient 60.7 in 1996	Gini coefficient 57.8 in 2000	Gini coefficient 64.8 in 2006	Gini coefficient around 63.0 from 2007–2019

* The Gini coefficient (World Bank, 2019) is the measure of inequality between the richest and poorest in a country. These rates show no substantial improvement in South Africa. The greatest drop in inequality was between 1996 and 2000, and it may be possible to establish which policies led to this improvement. The biggest increase was between 2000 and 2006. Although this was seen as a period of economic stability, in the long run it seems to have set a pattern for wealth inequality.

Sources: RSA (1997b); StatsSA (2017); Kidd et al. (2018); World Bank (2019); Africa Check (2020)

The sourcing of comparable figures between 1964, 1997 and 2019 is not straightforward. However, Table (iii) shows a clear relationship between poverty measures and the expanding or contracting Gini coefficient. It would appear that child poverty has reduced due to grant intervention. The number of

people with disabilities who receive grants appears to have dropped considerably, and employment figures have not risen, yet the official percentage of people with disabilities has not changed significantly since 1997 and 2014. This raises concerns over what people with disabilities might be living on.

The lack of progress in addressing the economic disparities reflected through the Gini coefficient seems to indicate that the lack of spatial transformation is material to the economic prosperity, health and wellness of many people, including people with disabilities. In 2015, the White Paper on the Rights of Persons with Disabilities focused the responsibilities of municipalities for spatial development and the Integrated Development Plan (IDP) process. However, the National Transport Master Plan (NATMAP) and the draft National Spatial Development Framework (NSDF) guide the development of transport and urban planning. Given the responsibilities of these documents to ensure that national legislation, from PEPUDA onwards, create a genuine experience of universal access to services for all, the non-alignment of all these documents at a strategic level is puzzling.

Another underlying factor appears to be related to underspending on projects that lift people out of poverty, which is not the same as saving money. There are mechanisms within government grants processes that do not result in (disability) inclusion outcomes or outcomes aligned to constitutional values, but have the opposite effect. The outcome of a social development programme ought to create a flow of people from social welfare to a financially independent state so that they can meet their own needs (RSA, 1997b), ultimately achieving higher national income.

Without understanding and dealing with the barriers that prevent people in chronic and sustained poverty from achieving a better quality of life, how will these barriers to social inclusion that Nelson Mandela identified in 1964 be removed?

CHAPTER 3 METHODOLOGY

3.1 INTRODUCTION

Chapter 3 describes the methodology and research utilised to answer the research questions on the development of the UDAP within the Enabling Environment Programme of the Accessible Public Transport Strategy, and the ability of the 13 municipalities implementing Integrated Public Transport Networks (IPTNs) to ensure compliance with universal access outcomes. Network maps and data on the 13 IPTN municipalities are found in Table (vi) in Chapter 4 (Section 4.10.1). The research questions are provided in Chapter 3 (Section 3.3). The UDA adopted a multi-method approach to the research, following the procedure outlined in the Accessible Public Transport Strategy (DoT, 2009) to implement accessible transport systems. The methodological approach utilised combines a range of sources, including national and international transport studies and guidance, and primary and secondary research. It includes quantitative surveys and qualitative methods. The methodology draws on a range of case study material such as site visits, bilateral meetings, municipal UDAPs, universal access audits, UDAP annual template returns, meeting minutes of the ICT Subcommittee on Universally Accessible Transport, complaints received through the DoT complaints system and photographic evidence.

3.2 DESCRIPTION OF METHODOLOGY

This section describes the research and data studies used to provide evidence in the findings, positioned against South Africa's international commitments and national legal obligations.

3.2.1 Use of the Inclusion and Disability Baseline Assessment

The *World Bank Baseline Assessment of Inclusion and Disability in World Bank Activities* (Stienstra et al., 2002) provided a framework for a baseline assessment of the DoT's universally accessible transport projects in 2010. However, at the time of writing, it has not been possible to locate other international examples of its use in the transport field. Transport studies on universal access occasionally reference the World Bank baseline assessment (Roberts & Babinard, 2004), and it bears similarities to other suggested approaches to deal with disability and transport poverty (Venter et al., 2004; Kunieda & Roberts, 2006; Maunder et al., 2004). A broader urban planning approach can be identified in Ecuador, concerning the urban footprint, with transport considered in this context (UN DESA, 2015; Ecuador Technical Secretariat, 2015; Chacón, 2019).

The development of an implementation plan

The *World Report on Disability* (WHO, 2011), *Inclusion Matters* (Das, 2013) and the *UN Flagship Report on the SGDs* (UN, 2018b) cover parts of the World Bank baseline assessment. These three global

reports make similar findings and recommendations on the types of interventions required to address the problem of transport inaccessibility. These interventions support the approach of developing a plan within the context of an 'enabling environment' of policy, legislation, capacity building and funding. All three reports emphasise the importance of universal accessibility over an entire city (town or village), not a transport system in isolation.

The *UN Flagship Report on the SDGs* (UN, 2018b: 266–267) contains examples of innovative policies on elements of the urban form in Paraguay, Japan, Australia, Nepal, Germany and South Africa (namely, the Accessible Public Transport Strategy). The conclusion identifies inclusive transport as a driver of economic growth. It recommends compact city development and the creation of urban accessibility plans. The Accessible Public Transport Strategy uses the concept of the travel chain, which is referenced in international literature (Frye, 1996; Human Engineering and Guide Dogs for the Blind, 2008), to describe the travel journey on public transport made by each passenger, including passengers with disabilities.

International commitments

The SDGs constitute the international commitment that South Africa has made towards environmental, economic and social sustainability (UN, 2016). The direction of the SDGs (goals 10 and 11 in particular) is towards a socially sustainable city that is 'inclusive' or 'universally accessible' (2016: 25–26). The UN Convention on the Rights of Persons with Disabilities (UNCRPD) (UN, 2006) focuses on 'equality of outcome' (2006: Article 9). National indicators are therefore required to demonstrate movement towards a better quality of life through government action, and away from a worse quality of life, for people with disabilities and other vulnerable groups, including evidence of the implementation of a universally accessible transport system.

Baseline assessment and gap analysis

An examination of the World Bank's activities from 1999 to 2001 by a panel of experts in disability inclusion resulted in the development of the baseline assessment for disability-inclusion programmes in the World Bank, which was an evaluation of selected World Bank projects and a set of recommendations for future projects from a disability-inclusion perspective (Stienstra et al., 2002). Using the thematic areas and evaluation criteria provided by the World Bank baseline assessment, the UDA compared it with the Enabling Environment and UDA programmes. The results of the gap analysis are provided in Appendix A (Baseline Assessment). In summary, through a comparison against the thematic areas and evaluation criteria, there was sufficient evidence in the DoT Enabling Environment Programme to show strong alignment with the recommendations of the World Bank

baseline assessment for a disability-inclusive approach. Given that the work carried out in the DoT from 2006 to 2009 so closely follows the World Bank baseline assessment, why have these transport projects not had the desired impact between 2010 and 2020?

3.3 RESEARCH QUESTIONS

The three research questions are:

A. Is the Enabling Environment Programme, the foundational pillar of the Accessible Public Transport Strategy, effective for the monitoring and evaluation of the Universal Design Access Plan (UDAP)?

B. Is the UDAP the right tool through which to implement universally accessible transport?

C. To what extent do compliance mechanisms exist in municipal government to ensure that both (i) the Accessible Public Transport Strategy and (ii) the UDAP are implemented? Research question C is divided into C(i) Compliance mechanisms for implementing the Accessible Public Transport Strategy, and C(ii) Compliance mechanisms for implementing the UDAP.

Question C requires consideration at the strategic level of municipal reporting and programme development by the DoT (question C(i)), and at the operational level of implementation in municipalities (question C(ii)). Therefore, the evidence for research question C is included with the evidence for research questions A and B, as the Enabling Environment Programme of the Accessible Public Transport Strategy and the UDAP include strategic and operational compliance with legislation, respectively. The first part of Chapter 4 discusses compliance at strategic level with the Accessible Public Transport Strategy through the Enabling Environment Programme (question C(i)). The second part of Chapter 4 discusses compliance with municipal reporting and operational UDAP implementation (question C(ii)). Chapter 5 (Conclusion and Further Research) discusses all three research questions.

3.4 EVALUATION OF UDA, THE IMPLEMENTER

This methodology describes an approach for project evaluation which includes:

a) The evaluation of tools and mechanisms (legislation, strategy, policy, grant funding and standards) put in place before the DoT Universal Design and Universal Access Directorate (UDA) began its work in public transport in 2010.

b) An evaluation of the role of the author of this study within the research. Such an evaluation appeared to be applicable, in line with other sociological research approaches (Burgess, 1993; Lee, 1995),

given that the author is the director of the UDA, which conducts and runs the implementation of the Accessible Public Transport Strategy and the UDAP implementation process.

Evaluation

For item a), it should be noted that the DoT put these tools and mechanisms in place before the UDA began its work in public transport in 2010. Therefore, the evaluation for this master's dissertation is of a framework for disability inclusion, developed by previous DoT officials in the PTND and their appointed consultants, not directly the UDA or the author of this dissertation.

For item b), the evaluation of the UDAP, municipalities are directly responsible for the accommodation of universal access passengers (RSA, 2009a). Although only the 13 IPTN municipalities receive the Public Transport Network Grant, the National Land Transport Act applies nationally to all 278 municipalities. Expertise in universal design and universal access is appointed directly to municipalities, by municipalities. This competence is identified as a scarce skill in South Africa. There are no nationally run courses in this field. Internationally available academic courses are few, and not within the available financial resources of many South Africans. There are a limited number of external experts able to evaluate this work within available resources, and a need to develop expertise at academic institutions.

The government has a duty, through the Constitution and departmental responsibilities, to provide access to services for everyone (Government of the Republic of South Africa & ORS V Grootboom and ORS 2000 (11) BCLR 1196. (CC)). Therefore, terms of reference (DoT, 2013a) were developed to assist municipalities to use both the definition of a competent person on environmental access, in line with legislation (RSA, 1977, as amended, 2008; SABS, 2010), and the conditions of the PTNG, which allow for the appointment of experts, to appoint an access consultant to the municipality in order to provide capacity development and technical skills. The terms of reference for the appointment of an access consultant outline the role that the access consultant must take, including capacity building, to ensure the transfer of knowledge from the consultant to municipal staff.

The DoT expected that this approach would succeed in setting up new systems so that compliance with (existing) legislation could become embedded, creating universally accessible transport systems (and cities) that were indicated as necessary in 1999, in the Moving South Africa Report (DoT, 1999) before the publication of the SDGs (UN, 2016). This master's dissertation and the tools developed to implement the Accessible Public Transport Strategy are designed to contribute to the development of a broader national body of knowledge in project evaluation from both a universal access and disability-inclusion perspective.

In summary, the implementers in legislation are the 13 IPTN municipalities supported by their appointed consultants, not the DoT. The municipalities receive PTNG funding for project implementation and are responsible for its expenditure in line with the annual Division of Revenue Bill (National Treasury, 2010–2020). They oversee transport project outputs in line with several Acts, including the NLTA (RSA, 2009a), the National Building Regulations and Building Standards Act (RSA, 1977, as amended, 2008) and PEPUDA (RSA, 2000b). The DoT runs the Enabling Environment Programme and provides a monitoring and evaluation system, in line with the NLTA. All the Acts listed state the municipal responsibilities for compliance with expenditure and outputs, as well as financial management (RSA, 2003a; 1999a). Chapter 4 (Findings) and Chapter 5 (Conclusions and Further Research) discuss the success (or lack thereof) of using of this mechanism.

3.5 RESEARCH SOURCES

The research methodology draws on a range of research sources, as listed in Table (iv). The author runs the Universal Design and Universal Access (UDA) programme in the Department of Transport. The author, with staff under her supervision, undertook the primary research used in this dissertation, and commissioned secondary research undertaken by municipalities and their consultants, through guidance written by the author (DoT 2013b; DoT, 2016a), using the PTNG for which the PTND is the accounting office:

Table (iv): Research and data studies used

Research question	Author	Inclusion of quantitative data	Inclusion of qualitative data
A and B	**Primary research undertaken by UDA**	Progress on UDAP development between 2016 and 2019 (PTND, 2018, 2019b)	
B and C		National reports on complaints received through the monitoring system run under the National Land Transport Act (Chapter 2, Section 18(5)), which are developed into reports, and as required for the DoT complaints system (RSA, 2015b); for example, in aviation (PTND, 2018a), for minibus taxis (PTND, 2018d), and the Tshwane passenger study (Thobela, 2017), a study on the operational effectiveness of an accessible transport system for universal access passengers.	
A and C	**Secondary research undertaken by others (Municipal IPTN surveys for UDAP development)**	Polokwane (Davies et al., 2016), Buffalo City (Scott, 2018), George (Scott, 2019), Mangaung and Buffalo City; recognising that for some of the secondary data – for Mangaung (GoMetro, 2018), Buffalo City (Scott, 2018) and George (Scott, 2019) – the analysis is contentious.	Cape Town (Davies, 2013a), Nelson Mandela Bay (Davies, 2013b) Polokwane (Davies, 2013c), Rustenburg (Davies, 2013d), Tshwane (Davies, 2013e) Ekurhuleni (Thompson, 2013), Johannesburg (Thompson, 2016), eThekwini (Seirlis & Thompson, 2013), Buffalo City (Scott, 2018), GoGeorge (Scott, 2019). The UDAPs for Msunduzi, Mbombela and Mangaung are too out of date to be included.

Table (iv): Research and data studies used			
Research question	**Author**	**Inclusion of quantitative data**	**Inclusion of qualitative data**
B and C	**National studies**	National Census and National Household Travel Survey reports (StatsSA, 2011; 2013), National Income Dynamic Study (McEwen et al., 2009), Cost of Disability Study (Hanass-Hancock & Deghaye, 2015).	Moving South Africa (DoT, 1999); Implementation Strategy to Guide the Provision of Accessible Public Transport in South Africa and Action Plan (DoT, 2009); Public Transport Strategy and Action Plan (RSA, 2007b).
B	**International studies**	Stienstra et al. (2002); UNDP (2019; Benner & Pastor (2016); Fremstad (2008); Mitra et al (2011), World Bank (2019); Social Progress Imperative (2018).	
B		International survey by GAATES (Frye, 2013), which received a substantial response from the South African disability sector.	
A		International reports on disability exclusion and inclusion referenced from WHO (2011) and the UN (2018b).	
Source: Author's own			

3.6 CONTRIBUTING SOURCES, THEIR STRENGTHS AND WEAKNESSES

Passenger surveys conducted for the IPTN municipalities by consulting transport research companies have consistently failed to fully identify the needs of, or to engage with, people with disabilities and other universal access passengers, despite the PTNG conditions. Over a period of ten years, only one municipality, Polokwane, has produced a comprehensive survey (Davies et al., 2016). Other municipalities have consulted with people with disabilities locally to a greater or lesser extent, and these reports are referenced in Table (iv). Apart from the Polokwane study, none of these reports demonstrate the thoroughness required to truly understand the impact of the lack of transport on the lives of people with disabilities.

The information in some of the reports for UDAPs, or produced as part of UDAPs – for Mangaung (GoMetro, 2018), Buffalo City (Scott, 2018) and George (Scott, 2019) – appears to apportion fault to interviewees with disabilities for not understanding their difficulties (in the report for Mangaung), or the UDAP process is used to further marginalise people with disabilities (in the reports for Buffalo City and George). Other UDAPs do identify barriers to participation and provide solutions to overcoming them (eThekwini, Johannesburg, Ekurhuleni, Tshwane, Cape Town, Rustenburg, Polokwane). Broadly, it is apparent that access consultants who have studied universal access are better able to provide advice to municipalities on the inclusion of universal access residents, and that professionals from other fields who have not studied universal access are less able to so, or misinterpret the data.

Notably, national studies, such as the National Income Data Survey (NIDS), do not contain enough data to analyse disability exclusion as a separate issue. Some focus primarily on social assistance grants as a proxy for disability (McEwan et al., 2009), but only a fraction of the population of people with

disabilities have access to such grants. Moreover, these grants cannot serve as a proxy for other universal access passengers.

The National Household Travel Survey (StatsSA, 2013) demonstrates similar problems in that the effective sample is quite small. It is easily possible, without a thorough analysis of the barriers that people with disabilities face, to misinterpret the data due to a lack of knowledge; for example, the misinterpretation that only 2% of the population of people with disabilities need accessible transport (StatsSA, 2013). It should be noted that although the information presented in the National Household Travel Survey (StatsSA, 2013) may be correct, it is the understanding that the analyser brings to the data that may lead to misinterpretation. Misinterpretation of data may have led to unwillingness by the government to implement disability-inclusion programmes due to a lack of appreciation of the risks and impact of exclusion.

Other national studies, such as the profile of persons with disabilities in South Africa (StatsSA, 2014b) and the Community Survey (StatsSA, 2016), are extremely helpful in demonstrating the functional needs of people defined in transport legislation as having access needs. The studies highlight areas of concern – for example, the non-distribution of assistive devices, and the lack of ability of children with disabilities, especially in rural areas, to get to school – and provide evidence to demonstrate that the lack of accessible transport is one of the reasons that people with disabilities are unable to get to work.

Lastly, as it is standard practice not to include people in institutions or special schools in statistical surveys, either nationally or internationally, as indicated in Census data (StatsSA, 2011). People with disabilities have been placed in institutions and special schools precisely because local communities have a tendency not to accommodate them, and because they are unable to participate in society. As the Life Esidimeni events demonstrated in Gauteng, with lessons for the whole country (Makgoba, 2017), the risk of the government excluding people with disabilities has serious unintended consequences.

Although international studies seem to provide some evidence of the national situation in South Africa, the lack of detailed national studies that identify barriers to participation in transport is another reason for this master's dissertation, to objectively highlight the needs of a group of people who have not been properly accommodated in research studies to date, or in existing transport systems.

CHAPTER 4 FINDINGS

4.1 INTRODUCTION

Chapter 4 presents the findings on the implementation of universally accessible public transport in the 13 IPTN municipalities and describes the initial attempts to evaluate plans at both strategic and operational levels. The purpose is to examine the logic of developing the Enabling Environment Programme in the Accessible Public Transport Strategy itself, and then its effectiveness through municipal UDAP implementation. This chapter presents the findings in response to the research questions in two parts. Part I deals with research questions A and C(i) on the Enabling Environment Programme of the Accessible Public Transport Strategy, and compliance with legislation that supports its implementation. Part II deals with research questions B and C(ii) on UDAP development, and compliance with legislation that supports the implementation of the UDAP.

4.1.1 Background

The 13 municipalities in which the IPTN is being implemented report annually on UDAP development as part of the annual budget proposal cycle. The UDA requests supporting evidence, but municipalities do not always provide it. The PTNG requires participating municipalities to develop a UDAP as part of their operational plan, and revisions of the UDAP are requested as the system develops. The UDA does not give timeframes but requests them, in recognition of the independence of the planning functions of the municipal (and provincial) spheres of government (RSA, 1996b).

4.2 PART I: ACCESSIBLE PUBLIC TRANSPORT STRATEGY

Part I of Chapter 4 deals with the research and findings at strategic level with respect to the Enabling Environment Programme of the Accessible Public Transport Strategy. Part II examines the UDAP.

4.2.1 Materials and methods

This section describes the materials used in the development of the Enabling Environment Programme, and the methods used by the UDA to gather data, from 2010 to 2020, using a methodology developed by the author. The Enabling Environment Programme is the first pillar of the Accessible Public Transport Strategy and forms the foundation for the other pillars of the strategy, which apply an enabling environment to the universal accessibility of urban and rural transport, regardless of mode. The PTNG targets new public transport systems with a commuter focus in urban settings, and is therefore the focus of this master's dissertation, although the national complaints system captures complaints from universal access passengers on all forms of transport in both rural and urban settings.

4.3 MATERIALS

Ensuring social inclusion so that 'no one is left behind' is a still new requirement for many governments internationally, but this ought not to be the case for South Africa due to the country's history of disability equality over the past 25 years. However, this has not been achieved. All spheres of government and the associated SOEs have to report on progress towards the goal of social inclusion, lack of progress, or movement in another direction. These reports have been submitted to the UN Secretariat through the reporting lines on the UNCRPD since 2007 (RSA, 2013a), with periodic updated reports (UN, 2018a). The national WPRPD, which 'domesticates' the UNCRPD, gives quite specific targets on disability inclusion (Dube, 2014) to address the disability-focused outcomes of the National Development Plan (RSA, 2011). National reports are required annually.

Outcome indicators for disability-inclusive transport

The accurate measurement of a meaningful outcome remains an area of unmet need for disability inclusion programmes. In the Rivonia Trial speech, Nelson Mandela (1964) expressed the view that similar barriers affect all citizens, both with and without disabilities, and that disability is an all-encompassing concept when disabling barriers prevent progress towards a better quality of life for everyone. As the sections on the History and Origins of the Social Model of Disability (Section 2.2) and the Cost of Universal Access (Section 2.4) explored in the Literature Review (Chapter 2), unless the real cause of deprivation or discrimination is identified, interventions that are devised often do not accurately target the goal, and indicators are unable to demonstrate progress.

4.3.1 Implementing universally accessible transport within urban planning

It is important to note that problems for people with disabilities in accessing transport are a worldwide phenomenon. Not only developing countries, but also developed countries find implementing universally accessible transport problematic. Historic infrastructure does not accommodate everyone, for the reasons that Imrie (1996) describes. In the United Kingdom, with its established disability rights and transport accessibility legislation, the cost of upgrading the 1863 historic London Underground with step-free access and other enhancements, at only 30 out of 270 stations, between 2018 and 2022 is expected to cost £902.51 million in total (Transport for London, 2018). In Australia, transport is likewise seen as essential in ensuring participation in daily life, and the country has had strong disability discrimination legislation for nearly 30 years, with a vigorous compliance mechanism. About 80% of people with disabilities in Australia thus have access to transport within their neighbourhood vicinity, but 43% report that it is inaccessible to them, or that they have difficulty using it (UN, 2018b).

The DoT has allocated the PTNG to IPTN cities since 2008 to 2009. Through PEPUDA (RSA, 2000b), the government introduced legislation on preventing disability discrimination, with particular reference to access to facilities within the urban form (schedule 29). Between 2008 and 2011, the government published transport and urban inclusion legislation (RSA, 1977, as amended, 2008; RSA, 2009a; SABS, 2011). Yet the compliance actions taken through Equality Courts, described in Chapter 1 of this dissertation, have not led to any discernible change in the implementation of an accessible urban form, including transport systems (Appendix B, Summary of Complaints 2010–2020). Between 2007 and 2015, few interventions took place in universities to overcome the lack of universal access knowledge both in government and amongst built environment professionals. Some built environment professionals at the University of Pretoria were not aware that there was legislation to be implemented, whilst many of those who were aware of it thought that it was advice, not legislation (Karusseit & Gibberd, 2009). Municipal staff, including built environment professionals and their supporting consultants on the PTNG programme, identified a lack of knowledge of universal access in UDAP reporting from 2016 to 2019, which currently hinders the ability to implement universally accessible transport systems. The development of meaningful indicators and the evaluation of progress are both essential elements of the implementation of the Accessible Public Transport Strategy.

4.4 IMPLEMENTING THE ACCESSIBLE PUBLIC TRANSPORT STRATEGY

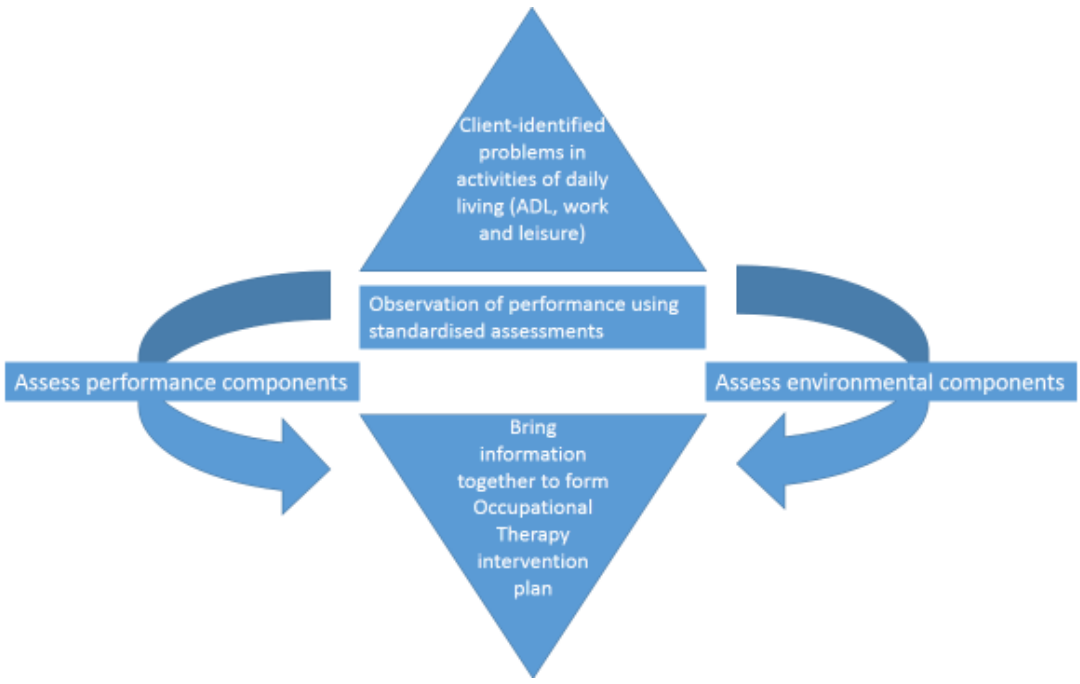
The Enabling Environment Programme, through which the Accessible Public Transport Strategy is implemented, is aligned to the project management approach provided in training initially conceived for the implementation of the Integrated National Disability Strategy (INDS), the precursor to the White Paper on the Rights of Persons with Disabilities, 2015 (WPRPD). This training was conducted at all levels across government between 2003 and 2005. Its purpose was to create a clear relationship between inputs (funding) and outcomes (measurable change towards disability inclusion), monitored by the respective level of government (Gauge, 2003b). The manuals used the World Bank's inclusion and disability baseline assessment (Stienstra et al., 2002) and the INDS (RSA, 1997a) as baseline documents. This approach was initially introduced across government from 2003, but by 2009 when the Accessible Public Transport Strategy was drafted, it was no longer available. However, the manuals remained and were used by the author in developing the Enabling Environment Programme.

4.5 METHOD

To develop an implementation plan using the social model of disability, in the case of transport (or any other form of service delivery), the transport system is considered as the disabling factor requiring

examination, not the people who wish to use it. The system comprises three sets of elements: the physical, information and communication elements (Stienstra et al., 2002). It functions within institutional mechanisms that control it, at the level of operational performance, directly through municipal government, and indirectly or directly through provincial and national government. The strategic level of performance of the plan is the Enabling Environment Programme of the Accessible Public Transport Strategy, and the operational performance level, UDAP development. Placing the transport system as the object of reform or rehabilitation reverses the regular method of measuring occupational performance, for example in occupational therapy. Following the social model of disability, this approach creates the antithesis of a position in which the person with the disability is the source of the problem, and instead places public transport as the source of the problem. This approach reflects the obligation in the INDS (RSA, 1997a: Foreword), to measure how society treats people with disabilities and others, which is repeated in the WPRPD and the UNCRPD. The approach of measuring progress towards optimal occupational performance (of an individual) is common in occupational therapy (Trombly, 1995), as outlined in Figure (h).

Figure (h): Model for measuring occupational performance used in occupational therapy



Source: Trombly (1995: 45)

Figures (i-i) and (i-ii): Inverted model to measure occupational performance in transport projects

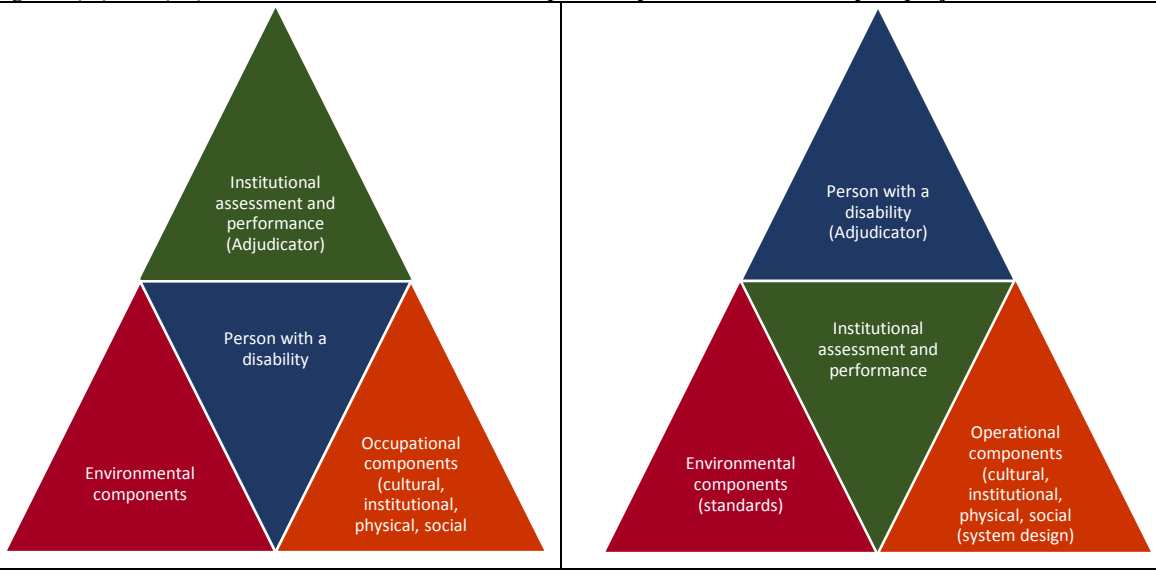


Figure (i-i) shows the traditional occupational performance model approach used in occupational therapy, with the client at the centre of treatment (medical model approach). Figure (i-ii) shows an inverted approach placing the (transport) system as the object of reform rather than the person (client), who then becomes the adjudicator of progress with implementation, (social model approach).

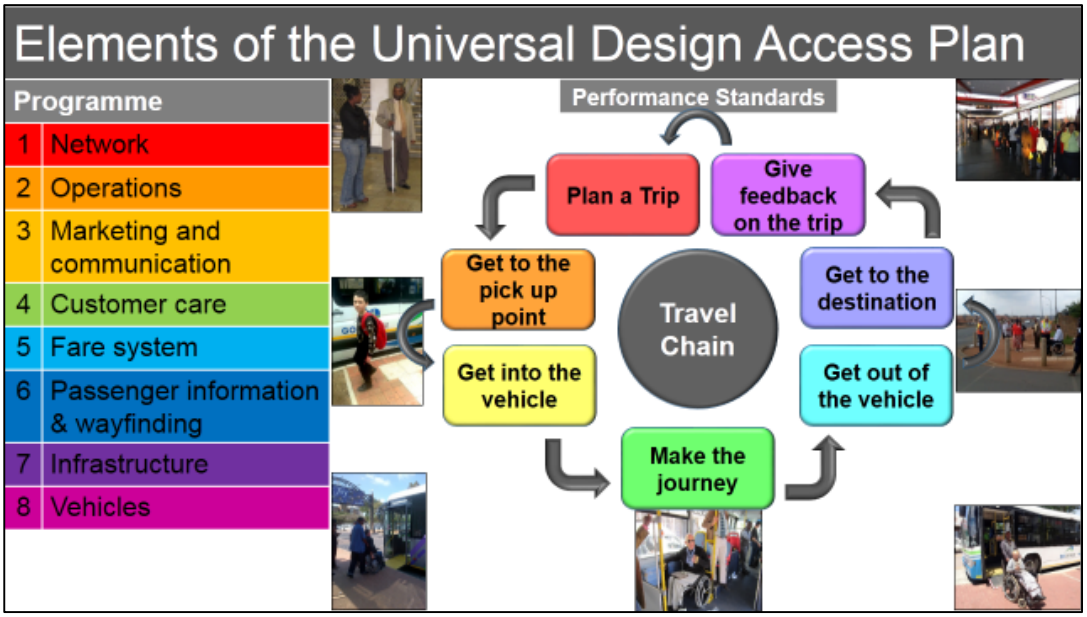
Source: Author's own

Using Figure (i), but focusing on the disabling elements of the transport (or other) system rather than any person using it, the occupational performance model can be inverted. The emphasis of the assessment moves from the medical model approach (Figure (i-i)) to the social model approach (Figure (i-ii)). The barriers to access located in both the physical environment and the institutional system are identified. The person with the disability becomes the adjudicator of optimal occupational performance. By using this inversion of an occupational performance model, the UDAP examines the barriers caused to users of public transport by the physical environment, information and communication systems, against agreed national standards, and within the institutional system through which the public transport system operates.

4.5.1 UDAP development

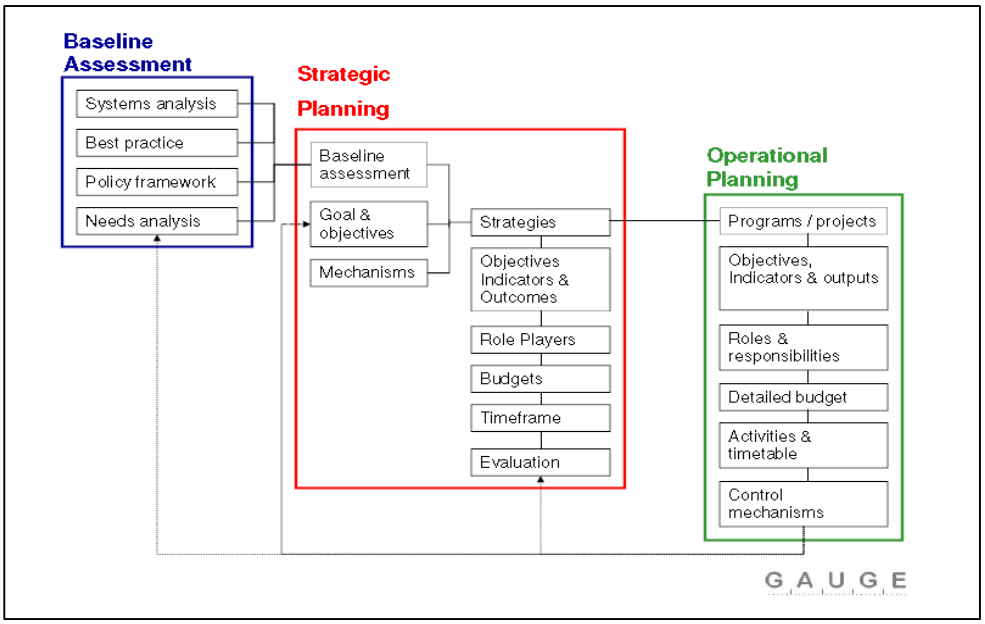
The UDAP examines the travel chain against a set of performance standards, developed by the author using the Accessible Public Transport Strategy as the basis for performance standard development (DoT, 2013b). These are implemented through programmes to provide municipalities with the means of implementing change, as shown in Figure (j), covering all the areas identified in the NLTA, and using a project management approach, as illustrated in Figure (k).

Figure (j): Elements of the UDAP



Source: Author's own

Figure (k): Plan development process



Source: Gauge (2003b)

To explain the process of UDAP development outlined in Figure (j) to implementing municipalities, two documents are provided, the PTNG Guidelines and Requirements (DoT, 2016a), and the Universal Design Access Plan (UDAP) template (DoT, 2013b). The guidelines apply to the grant as a whole, with

universal access as an integral part. The content of the UDAP is described in the Universal Design Access Plan template. The elements of development at strategic level are explained in the following sections.

4.5.2 The goal of the Accessible Public Transport Strategy

In terms of the National Land Transport Act, No. 5 of 2009 (RSA, 2009a), the DoT promotes public transport that is universally accessible, implemented by municipalities as far as possible (Chapter 2, Section 11(1)(c)(xiv)). What is possible should thus progress, rather than worsen, as the system is rolled out. Municipal services are developed through the approach described in PEPUDA (Chapter 9, Section 2) (RSA, 2000b) following the pattern of universal access, compliance with minimum standards supporting both universal design, and reasonable accommodation. Again, PEPUDA states that progressive rights are realised over time.

Although reporting on UDAP development is a distinct reporting requirement, the approach required through implementation (of transport systems) is one of mainstream integration and inclusion, not segregation. Thus **all** transport services, whether regularly scheduled services (municipal bus, BRT or long-distance bus), on-demand (Dial-a-Ride, Uber, Taxify, metered taxi or other), paratransit (minibus taxi) or another form of transport should be able to accommodate people with disabilities and those without. Public transport covers travel by plane or boat, rail, walking, cycling, bus and taxi. Whether or not services are subsidised, the right of access is not affected (PEPUDA, Chapter 5, Sections 24–28 (RSA, 2000b).

4.5.3 Strategic mechanisms

The following strategic mechanisms form part of the Enabling Environment Programme:

4.5.4 Oversight

The UDAP development process forms part of the operational plan for each IPTN, and the UDAP reporting process is used by the national government to monitor and evaluate UDAP development. Khibi Mabuse (2010) proposed a similar approach for access to public transport focusing on women. Her study of engendered transport provision identifies the need for flexible transport and multiple trips, maintaining a distinct focus on the users of public transport (both those that can, and those that would like to use it), including consultation with users (women) to devise a public transport system that will meet their needs (Mabuse, 2010). With the growing concerns around the safety of women in transport (Vanderschuren et al., 2019), Khibi Mabuse's study requires revisiting to ensure that its findings form a distinctive part of the Accessible Public Transport Strategy. Mabuse (2010) proposed an action plan

through which implementation would take place. The DoT's Accessible Public Transport Strategy and associated programme were subsequently initiated.

4.5.5 The UDAP

The UDAP is a document that was directly referenced in the PTNG framework in 2009 but was undefined in terms of content. It is supported by both PEPUDA (Chapters 25–27) and the NLTA (particularly Chapter 2, Sections 11(1)(c)(xiv) and 18(5)). The Accessible Public Transport Strategy was used to guide and substantiate the content of the UDAP. The content of the Enabling Environment Programme was developed through a Programme of Action (DoT, 2010), with tools created by the UDA to assist municipalities to set up their own municipal universal design access programmes. The Accessible Public Transport Strategy provides the broad content for the UDAP. The Accessible Public Transport Strategy (DoT, 2009) uses the Enabling Environment Programme, including the use of external 'access consultants' to support and guide municipalities, due to the lack of knowledge within municipalities of universal access (DoT, 2009: Action Plan, Appendix D). The strategy (DoT, 2009) is contextualised through departmental and national legislation. PEPUDA provides the universal access reference (Chapter 2, Sections 9a–c), which is already included in the Accessible Public Transport Strategy. The NLTA (RSA, 2009a) provides the legal reference through which standards, technical requirements and regulations are developed, the first being NTR 1. The process of developing national technical requirements is described in Part II of this chapter.

4.5.6 Strategic objectives of the Enabling Environment Programme

Through an analysis of the Accessible Public Transport Strategy using the occupational performance method described in Figures (i), (j) and (k), the performance of the public transport system is condensed into four measurable areas to benchmark progress, as well as one oversight area. These are:

1. **System design and assessment:** how the transport system is rolled out over time and whether it is becoming more accessible or less, as existing transport systems are upgraded
2. **Standards and scope of application:** the application of minimum standards supporting universal design, and the extent to which they are applied throughout the urban form
3. **Institutional development:** institutional knowledge, processes for implementation, compliance and enforcement
4. **Stakeholder participation and consultation:** direct consultation with service users and the ability of the institution to be able to take this knowledge and use it in implementation.

The fifth area is oversight of the whole programme:

5. **Progress with UDAP implementation:** monitoring and evaluation of the programme, and the elements of the programme that establish the ease of implementation of the UDAP.

4.5.7 Monitoring the Enabling Environment Programme

In line with the WPRPD, municipal outputs are requested as evidence of universal access performance:

System design and assessment: Recognising the institutional responsibility to move towards a goal of universal access for the entire municipal integrated public transport system. Examining barriers that prevent progress; for example, compliance with regulations and standards, or funding anomalies. Measuring the relationship between transport and the urban form so that the accessibility of either does not develop in isolation and inadvertently affect the universal accessibility of operations.

Standards and scope of application: Identifying where and how minimum standards that support the implementation of universal design have been applied (whether in the physical environment, digital or other) in the spheres identified in the World Bank's inclusion and disability baseline assessment (related to physical infrastructure, information and communication). Examining the extent to which their implementation has facilitated transformation towards disability inclusion.

Institutional development: Examining evidence of transformation within institutional policies, practices and procedures towards disability inclusion. Developing the capacity of officials to be able to implement the UDAP. Maintaining the role that PEPUDA defines for the government to implement a transformation agenda towards disability inclusion in transport at all levels of government. Maintaining the ability to query the support received; if necessary, by different spheres of government or SOEs.

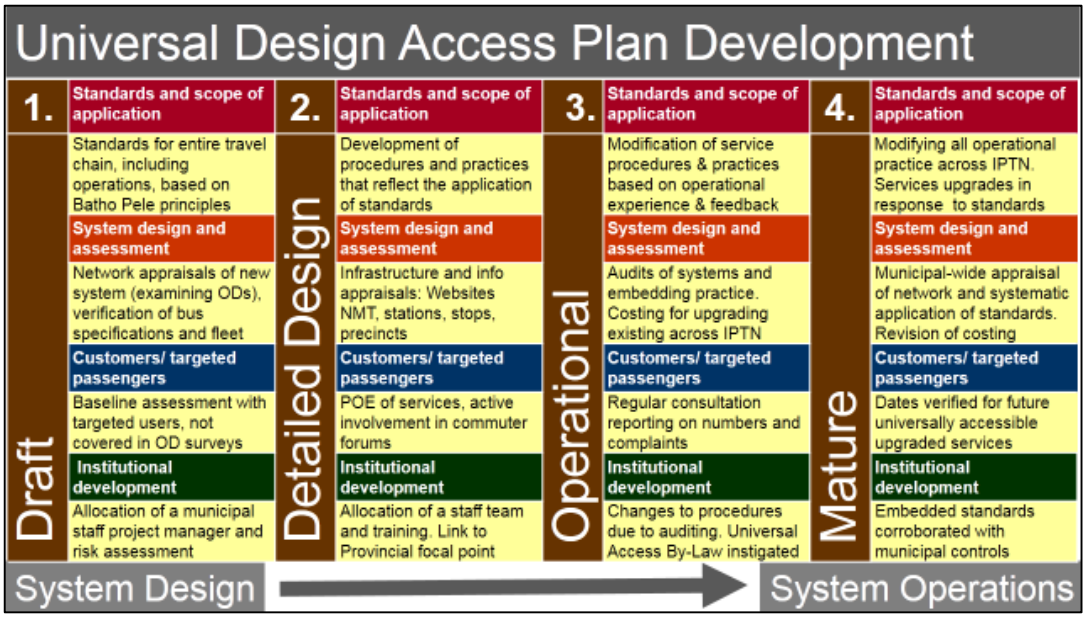
Stakeholder participation and consultation: Examining evidence of discrimination created by any transport service element. Maintaining active participation of the principally affected party, namely passengers. Referring back to complainants for evidence of municipalities' efforts to overcome barriers that cause discrimination, or lack of their removal.

Through measuring progress in the four implementation areas at the strategic (enabling environment) level, the relationship between the input (grant funding) and the outcome (equal inclusion of people with disabilities in society) can be mapped. At the operational level, the relationship between funding and outputs (infrastructure improvements, accessible vehicles and accessible websites) can be measured through the UDAP. Barriers to achieving the goal can be categorised. In 2015, with the publication of the WPRPD, the UDA devised a UDAP development template (Figure (l)), which was tested with the

Presidency. The rationale was to provide municipal staff with an immediate overview of the UDAP, and thus the gradual implementation of the accessible public transport system, from planning to operations, using the same set of measures throughout the development of the plan to categorise progress.

Evidence is required from municipalities for the four stages of the UDAP from planning to operations; from the development of a fairly simple basic plan to an embedded, mature one, as illustrated in Figure (l). An additional set of reporting templates was created to show the mechanisms available to the DoT, SOEs and provincial governments for reporting on the WPRPD since 2015 (Figure (m)).

Figure (l): UDAP development template



Source: Author's own

Figure (m): Institutional structure of the DoT and mechanisms for reporting on WPRPD

Delivering transport services: NDoT

Institutions

Municipalities		Integrated Public Transport Networks (IPTNs)		Provinces		State-owned Entities
Metros	8	8		9		14
Local	44	5				
District	226	4	Total municipalities	278	Total IPTN municipalities	13

Measures, Mechanisms and Tools

Legislation, Strategy & Regulation	Guidelines & Requirements, Standards & Licences	Monitoring & Evaluation	Enabling Environment	Grants
Which Departmental documents explain how national policy is supporting the implementation of UD and UA? Which documents are a barrier to implementation?	What actions have been taken to implement standards on UD in the transport environment? What changes have been made to procedures and practices to include UA?	How are transport institutions implementing UD and UA through a plan (UDAP). How are they making sure that the correct standards are implemented as well as institutional change?	Measures in place to ensure staff responsible for UA have sufficient knowledge. How knowledgeable are they about law in UD & UA and enforcement?	Grants explicitly support UA through grant conditions, out-comes & outputs. Which grants promote projects and programmes on UDA?

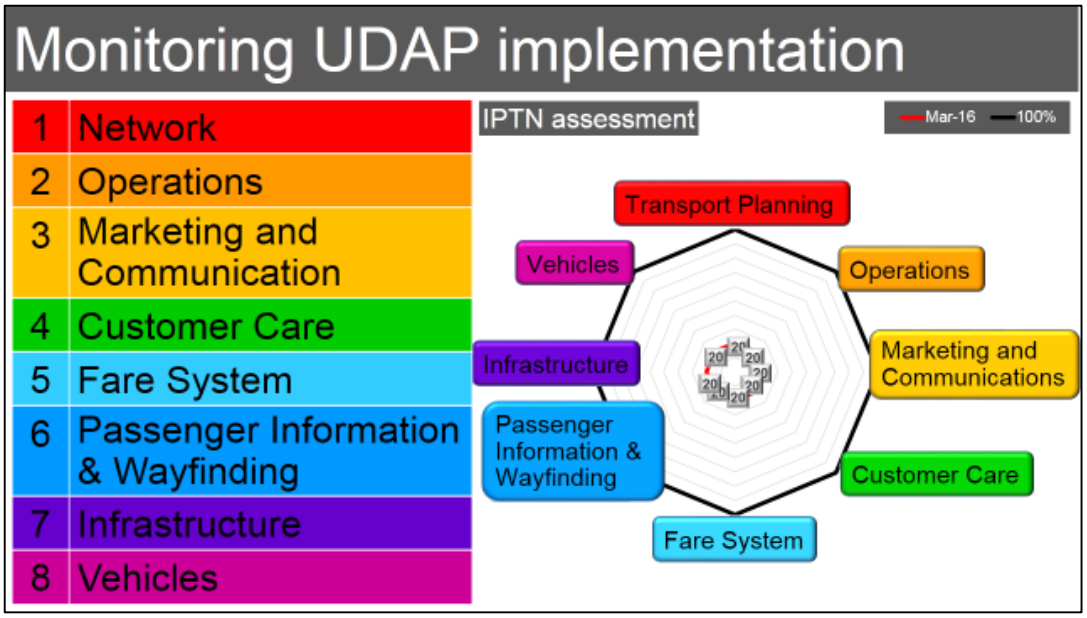
Source: Author's own

The approach in Figure (m) includes the reporting requirements of the WPRPD and aligns the reports with the UDAP development process. It does so for all transport services, not public (bus/minibus) transport alone. The table in Figure (m) is included because it highlights the complexity of recording progress with the delivery of transport services, involving eight metropolitan, 44 local and 226 district municipalities, nine provincial governments and 13 SOEs. Simply managing the reporting requirements of all of these service delivery agencies is an extensive task in itself, and possibly far too complicated, demonstrating serious weaknesses in the DoT's institutional model for service delivery.

4.5.8 Measuring performance against indicators

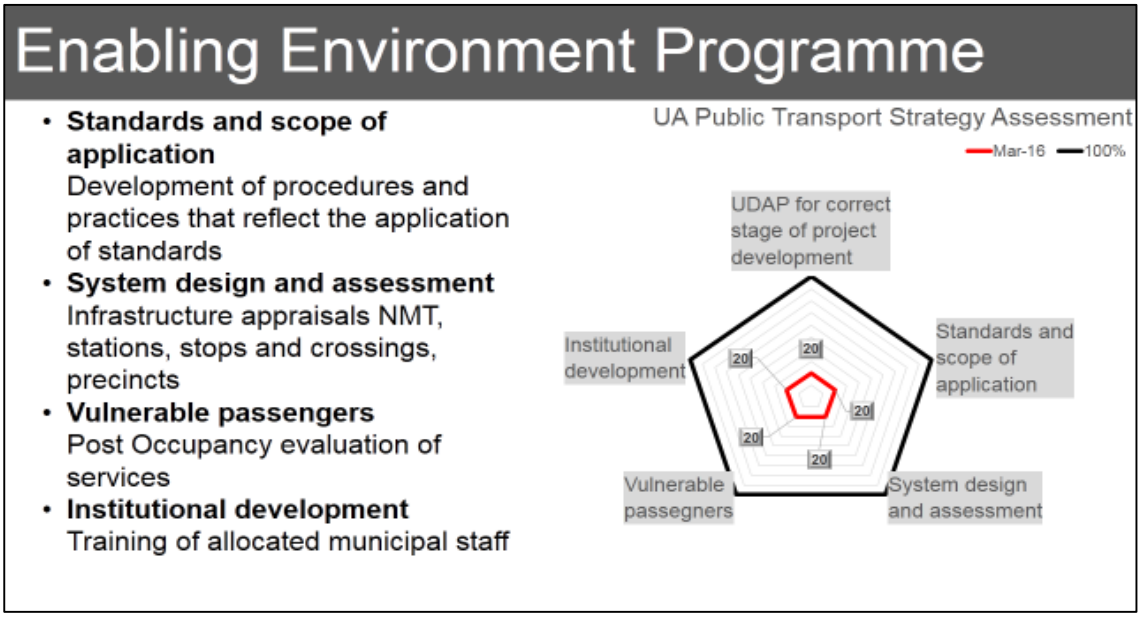
The spider diagrams in Figures (n) and (o) could show early versions of monitoring and municipal performance in relation to the UDAP, and could in theory continue to be used to measure performance. Documents that provide evidence could reflect the overall performance of the universal access element of the PTNG. It has not been possible to develop these performance models further due to the lack of evidence provided between 2015 and 2020.

Figure (n): A theoretical approach to monitoring the implementation of the programmes of the UDAP



Source: Author's own

Figure (o): A theoretical approach to monitoring the development of the UDAP



Source: Author's own

Aside from demonstrating performance and development of the UDAP, these tools could enable the project focus to remain at the level of disability inclusion, participation and access, not at the level of meeting minimum standards in infrastructure or vehicles alone. It is not possible to reach the level of inclusion required without meeting those standards. However, the essence of the UNCPRD is that

people with disabilities have to reach a level of equal participation. The aim is to ensure that people can all equally participate in society in a safe and dignified way, not simply get on a bus or another form of transport.

The analysis of the travel chain through performance standards thus provides the content of the programmes of the travel chain, which the municipality must implement to achieve the performance standards. This is done by implementing minimum standards in infrastructure and operations, appraising plans (whether infrastructure or operations related), and then auditing against the same standards, which become supporting documentation for the UDAP. These appraisals of plans and audits of physical infrastructure or operational systems are regular tools used in universal access (Centre for Accessible Environments, 1993; Siedle, 1996; Bright, 2003; 2005; Human Engineering and Guide Dogs for the Blind, 2008). It is to be expected that the UDA will develop standards and tools in other less defined areas such as information and communication. The World Bank's inclusion and disability baseline assessment (Stienstra et al., 2002) and the NLTA (RSA, 2009a) provide clear guidance on the range of standards for facilities, operations and services that would eventually form part of the UDAP.

The conditions of the Public Transport Network Grant allow for the appointment of specialist capacity to assist with the implementation of the PTNG projects (National Treasury, 2010–2020). Training was envisaged, given the lack of capacity in municipalities, coupled with the need to develop a system that enables municipal staff to independently develop their UDAP. The PTNG Guidelines and Requirements (DoT, 2016a) recommend that locally, municipal training needs would be assessed and met by an access consultant (DoT, 2009), as outlined in the Accessible Public Transport Strategy (action plan 6.2 and 7.3). The UDAP reporting process forms part of an action-learning approach to implementation, and the DoT provides capacity development on monitoring (DoT, 2010). The role of the access consultant is defined (DoT, 2013a). The access consultant is selected by municipalities, from a record of known experts in the field with qualifications in universal design, universal access or a similar field, and sufficient experience, expertise and knowledge to be able to perform the function. Thus it is anticipated that their input can be tailored to the specific conditions of each municipality, and be locally applied, with the overall goal remaining the same throughout the country (DoT, 2009; DoT, 2016a).

The outcome of UDAP implementation should be that an increasing number of people who were previously not able to use transport, are now able to do so, in line with the PTNG outcomes and national policy. As such, the nature of the development of the plan must be dynamic, not static. A process with feedback mechanisms should be identifiable, within a definite plan. The WPRPD (RSA, 2015c: 11),

using an approach of progressive realisation of rights, states that user-related complaints must be resolved, regardless of the timeframe it takes to do so, as does the NLTA (RSA, 2009a).

4.6 PRESENTATION OF FINDINGS: ACCESSIBLE PUBLIC TRANSPORT STRATEGY

The data generated for the research findings come from the following reports:

1. UDAPs, supporting document and evidence submitted by all 13 municipalities, and reports from site inspections carried out by the DoT from 2010 onwards.
2. Reports presented to the UDA during the UDAP development workshops. The findings from these are developed into reports by the UDA (PTND, 2018e). The 2019 submissions are also used as evidence in this dissertation.
3. Reports submitted on complaints received between 2010 and 2020, either directly to the DoT or through the ICT Subcommittee on Universally Accessible Transport (RSA, 2015b).

4.6.1 Evidence of UDAP development

The development of UDAPs has thus far been guided by municipalities. The date for submission has been proposed by the municipalities themselves, and versions have been updated at their discretion, after receiving feedback from the DoT. Table (v) shows progress in developing the UDAPs, whether municipalities appointed an access consultant to help, when, and how long the process of developing the UDAP has taken to date.

Table (v): Record of UDAP and supporting information submitted to the DoT, and whether municipalities have appointed external expertise

IPTN municipality		Appointment of an access consultant with qualifications and experience in UA*		Date of UDAP	Date of first UDA accessible bus IPTN service	Accepted by the DoT, approved by municipal council	Supporting evidence (audits, appraisals, operational reports) provided to date
1	Johannesburg	Current	No	Sept 2016	Running (high floor only)	No	None
		2015	Yes				
		2010**	No				
2	Ekurhuleni	Current	Yes	Aug 2013	Already running	No	None
		2015	Yes				
		2010**	No				
3	Tshwane	Current	Yes	Feb 2012	Already running	No	Fuller submission
		2015	Yes				
		2010**	Yes				
4	Cape Town	Current	No	Feb 2014	Already running	No	Partial submission
		2015	No				
		2010**	Yes				
5	George	Current	Yes	Dec 2013, then 2017	Already running	No	Fuller submission
		2015	Yes				

Table (v): Record of UDAP and supporting information submitted to the DoT, and whether municipalities have appointed external expertise							
IPTN municipality		**Appointment of an access consultant with qualifications and experience in UA***		**Date of UDAP**	**Date of first UDA accessible bus IPTN service**	**Accepted by the DoT, approved by municipal council**	**Supporting evidence (audits, appraisals, operational reports) provided to date**
		2010**	Yes	and 2020			
6	eThekwini	Current	No	Jan 2013	None	No	None
		2015	No				
		2010**	Yes				
7	Msunduzi	Current	No	June 2014	None	No	None
		2015	No				
		2010**	Yes				
8	Nelson Mandela Bay	Current	No	April 2013	Operational	No	None
		2015	No				
		2010**	Yes				
9	Buffalo City	Current	No	August 2018	3-10 years from service start	No	None
		2015	No				
		2010**	No				
10	Polokwane	Current	Yes	June 2014	Buses purchased	Yes	Partial submission
		2015	No				
		2010**	Yes				
11	Rustenburg	Current	No	8 April 2013	None	No	Partial submission
		2015	No				
		2010**	Yes				
12	Mangaung	Current	Yes	Sept 2017	None	No	Partial submission
		2015	Yes				
		2010**	No				
13	Mbombela	Current	Yes	Jan 2014	Existing services	No	Partial submission
		2015	No				
		2010**	Yes				
* Municipalities have often contracted and discontinued the use of an access consultant depending on the project management unit at a particular municipality. All universal access consultants have been subcontracted. The figures included divide the development of the UDAP into a five-year period and indicate whether or not an access consultant was appointed for all or part of the time, to give an indication of whether expert advice was available to the municipality during that period. It has not been able to secure the appointment of an access consultant with suitable qualifications in all cases.							
** Johannesburg and Cape Town services were running prior to 2010; however, no other municipal IPTN services receiving the PTNG (or its precursor) ran before 2010.							
Source: UDA							

Table (v) demonstrates that there is a gap in UDAP development in all 13 IPTN cities, with the exception of George, as well as a lack of supporting evidence received by the DoT. When compared with annual self-reporting by municipalities, it is evident that no city has municipal staff with sufficient knowledge of universal access or with the qualifications to implement it. Whatever has been provided by either the DoT or access consultants appointed by municipalities for limited or fuller periods has been insufficient to generate the expected outcomes defined in legislation. The reasons could be due to the lack of available training, or the lack of ability of municipalities to procure local assistance, for whatever reason. There appears to be evidence indicating the removal of a function responsible for ensuring compliance within institutional structures in government over the past ten years, which could

have created additional difficulties and contributed to the inability of municipalities to provide the required information to the DoT.

4.6.2 Stakeholder participation and consultation

The lack of available disability-inclusive indicators on inequality and equality, either nationally or internationally, hampers the ability to identify progress or the impact of initiatives such as the accessible public transport projects, as Chapter 2 illustrates. This situation highlights the importance of including people who have disabilities, and who experience daily discrimination, in the development of any measures. The level of engagement with people with disabilities in Norway is an important part of the experience of equality (Hellzen et al., 2018). In South Africa, similar levels of engagement have been required since 1997 when the INDS was published, but have only partially been implemented.

The Literature Review (Chapter 2) identifies that the inability of South Africa to implement its legislation on transforming urban and transport planning appears to contribute to a lower standard of living and quality of life. It was also shown that inactivity caused by the introduction of barriers to mobility, rather than their removal, has increased levels of ill health and death compared to other countries with similar legislation that have implemented this legislation. It is worth noting, however, that despite the progress that Brazil appears to show over South Africa in terms of socio-economic progress on the Human Development Index, a recent international report on Brazil indicates evidence of severe levels of disability discrimination (Human Rights Watch, 2018). These factors illustrate the complex nature of implementing and reporting on both disability equality and disability inclusion, especially drawing comparisons between countries, and why one of the most important measures is evidence from stakeholders.

4.6.3 Transport complaints

From 2010, complaints investigated by the DoT were received from the Presidential hotline, referred through the office of the director-general or the Presidency, or sent directly to the DoT (RSA, 2015b). The DoT has consistently documented complaints, and included them in a report to the Presidency on the UNCRPD in 2013 (RSA, 2013a). In 2016, the DoT included complaints in the first report on the WPRPD to the Presidency. Appendix B includes a summary of the complaints collated since 2010. Municipalities or transport operators receive and deal with most of the complaints. Some of the complaints that the DoT receives are not easy to resolve. In such cases, the DoT uses PEPUDA to find a process of reconciliation by bringing together the passenger and the operator to resolve the issues. The UDA does not reject complaints even if they are unresolved. With the national rise in gender-based violence, the DoT has witnessed women's groups becoming more active on public transport issues since

2016. In 2015 and 2017, the DoT deputy director-general for public transport received a summary of these complaints and their resolution or lack thereof. The UDA develops specific reports for complaints received and provides them to the relevant branch or directorate of the DoT (PTND, 2018a, PTND, 2018d). The DoT provides reports to the Presidency through the mechanisms of the WPRPD, as well as internal submission.

4.6.4 Progress with municipal implementation

Over the past ten years, only six of the 13 IPTN municipalities have started to run new bus services, covering a relatively small geographical footprint of their municipal area. These six have attempted to follow the PTNG grant conditions and to make the systems universally accessible, with varying degrees of success.

None of the 13 municipalities has submitted enough information to support their UDAP development. Table (v) demonstrates that all the UDAPs need revision. Currently, the GoGeorge system in George has a UDAP that is up to date but inaccurate, but which is most aligned to actual operations. The UDAP for the GoGeorge system included an interpretation of legislation and policy that is not supported by PEPUDA. eThekwini wrote its UDAP in response to its entire municipal wall-to-wall operational plan, but the municipality is only implementing a fraction of this plan and needs to provide a revised plan relevant to the launch of the actual service. Cape Town submitted a UDAP in 2014 that was relevant and won an international Zero Project (2014) Award, an initiative of the Austrian Essl Foundation, organised jointly with the World Future Council and the European Foundation Centre, to recognise models that improve the daily lives and legal rights of all persons with disabilities. Cape Town's system has developed further since then, but the UDAP has not.

Other cities (Msunduzi, Buffalo City and Mbombela) developed systems that could not easily be made universally accessible. Msunduzi developed a system that required several lifts and other features that were both impractical and would vastly increase the cost. The UDAP was not accepted by the DoT, because the system itself would be impossible to maintain and unaffordable to run. However, the municipality has not submitted a revision. Buffalo City indicated that it would like to start running without any accessible vehicles at all, and that these would be introduced over a period of three to five years once the system was in operation. There are specific conditions on universal access, and expectations from the Moving South Africa study and the Public Transport Strategy, that entire universally accessible networks would be implemented by 2020. This request by Buffalo City would therefore be legally difficult to justify. In Mbombela, the lack of progress is an institutional issue between the province and the municipality. The system was to have run using existing vehicles, with

new accessible vehicles introduced as soon as possible, in 2011 to 2012. The provincial service is already running existing vehicles with some accessibility features, and this service makes reasonable accommodation measures so that universal access passengers can use it. Therefore, it would be not be legally justifiable to introduce worse standards of service in 2020. However, broader development planning issues have prevented transit-orientated development to support a universally accessible public transport system during the same time period. This problem is evident in most of the municipalities.

One of the key problems for municipalities is that for these new transport systems, the travel demand studies were conducted during the early years of the project. The studies thus do not refer to people who are not currently able to use public transport, or who find it difficult to use. Polokwane submitted the first comprehensive study in 2015 (Davies et al., 2016). Latent system demand must be estimated based on research, including the travel needs of people not currently able to travel. This was one of the findings of the Moving South Africa study in 1999, and one of the core reasons for the IPTN projects; yet there has been little action to address this finding.

4.6.5 System design and assessment

Progress in implementing the UDAP is reliant on progress in implementing the IPTN. Where difficulties emerge in other parts of the project, the speed of UDAP implementation tends to decrease. Negotiations with the minibus taxi sector (and the established bus sector) resulted in significant delays in most of the projects. One of the observable unaddressed gaps is that the Public Transport Strategy (RSA, 2007b) requires development through the introduction of new transport projects alongside the upgrading of existing services.

Existing minibus taxi and bus services

Over the decade until 2020, no projects have begun on upgrading existing services, such as the minibus taxi industry, without expecting operators to transform their services into a new bus-operating company. Provincial bus services in both Mpumalanga and Cape Town have begun to purchase new universally designed vehicles or convert existing vehicles with lifts that people in wheelchairs can use. However, unless the service coordinates vehicle purchases with infrastructure appraisals, audits and passenger surveys of latent demand, this may not result in increased patronage by people with disabilities, in particular. The complaints system run by the DoT (RSA, 2015b) has identified problems with existing bus (and other public transport) operations. Many of the actions taken to try to resolve the issues raised in complaints are inconclusive, resulting in no change to transport provision, and no resulting action to upgrade services.

Rail services

The Gautrain Metro service provides a rail service with an integrated 'last-mile' bus service. The rail services is level at the platform/train interface, which is a marked achievement in rail accessibility, and some of the coaches include some universal design features. However, the planning and design of stations did not always include national minimum standards supporting universal design. The 'last-mile' bus service does not use universally designed buses. Nevertheless, the Gautrain rail service is an improvement on the current PRASA service in Gauteng, and people in wheelchairs can use it independently, if it is within their level of financial affordability. PRASA services have been going through the process of being upgraded over time. The process to make PRASA and Gautrain services universally accessible does not form part of this study. Provincial services (or other services such as PRASA) are not currently the subject of municipal UDAP reporting, even though they form part of an integrated public transport network in terms of legislation. Non-motorised transport (walking, cycling and animal-drawn vehicles) also forms part of the passenger journey, implemented as part of the IPTN projects. The public should not need to distinguish between services, since they are all provided as part of the municipal transport system.

The complaints system provides evidence of problems with all forms of public transport, and barriers to access in both new and existing systems. It is difficult to calculate the success rate in resolving complaints, because NGOs frequently complain on behalf of all of their members. Furthermore, people without disabilities may submit complaints based on their observations of the way in which people with disabilities, elderly people and other vulnerable groups are treated on public transport. These limitations notwithstanding, successful resolution is extremely rare, and probably around only 0.02% of complaints received. It should be noted that progress in resolving complaints has not become easier, and the nature of complaints received has not changed in ten years.

There seems to be a disjuncture between legislation conferring equality, dignity and safety; people's daily experience in relation to these basic human rights on public transport; and the inability of institutional structures to deal with the problems that people raise. Furthermore, cases related to transport problems that complainants with disabilities have reported to the SAHRC, which is the body responsible for holding the public and private sector accountable under PEPUDA, have not resulted in conclusive outcomes. This suggests that there are no longer enforcement mechanisms in place for disability rights, and there is a corresponding lack of compliance by both the government and operators in the private sector.

4.6.6 Standards and scope of application

The NLTA requires the DoT to develop technical requirements and regulations in the form of minimum standards for universally accessible public transport, together with a timeframe for implementation. The NLTA (Chapter 1, Section 2(c)) (RSA, 2009a) states that these apply nationally, regardless of municipal independence. Standards for infrastructure are well-established through the minimum standards in Part S of the building regulations (SABS, 2011). Although there are gaps in these standards, the principles with respect to surfaces are based on recognised international research. This is important for transport systems. The SABS released a new standard for vehicles in 2009, and a European standard for universally designed buses was adopted (EU, 2009). Other standards were required for public space, such as pedestrian crossings, as well as for bus operations.

The DoT led a tender to develop regulations for an entire universally accessible public transport system (with supporting minimum standards in the form of technical requirements) in 2014; however, the department cancelled this tender due to the cost differential between the budget available for the work and the overall cost of the bids received. The DoT subsequently decided to release the tenders by dividing the work up into the National Technical Requirements (NLTA, Chapter 1, Section 2(c)) covering the minimum standards. The timeframes could then be published separately in regulations.

Through the Minimum Requirements for the Preparation of Integrated Transport Plans (DoT, 2016b), all transport systems are required to be, or to become, universally accessible, from 2016 onwards. Furthermore, municipalities must exercise control over service delivery through the setting of operational standards for monitoring compliance (NLTA, Chapter 2, Section 11(1)(c)(xxv)). The DoT selected the term ‘requirements’ over ‘standards’ due to the elements involved in transport planning and design. Standards on universal design are part of the requirements. However, the result is not the implementation of a standard, but the delivery of a service (UNCRPD and WPRPD). A performance measure is required for the execution of the standard. The experience of developing the first standard, NTR 1, is described under the findings on UDAP development and reporting, in Part II of this chapter. The DoT has not developed any other NTRs. In part, this is because of the evident deceleration in the pace of implementation in municipalities, but also because of the lack of compliance with standards. The DoT must resolve these problems before producing more standards that have little chance of implementation or compliance.

Progressive implementation of the UDAP

Initially, the UDA assumed that transport projects would evolve according to a linear approach from planning to operations, with project development following the same approach; from a draft UDAP

covering the programmes and performance standards of the travel chain as described in the Accessible Public Transport Strategy, through to documented research with users and an evaluation of the transport network in response. These were to be the principal features, and form stage 1 of UDAP development. Stage 2 (detailed design) would include universally designed infrastructure approved by an access consultant working in conjunction with the design team. Universally designed websites and transport information systems to ensure audible, visual and digital communication would be included. Other aspects to be included were crafting the policies and practices of the service, training of staff so that drivers would know how to accommodate people with disabilities equally and drive appropriately, and service ambassadors offering reasonable accommodation. Operations would begin during this stage. Stage 3 would allow some time for all these new systems to become established, and practices would be revised until the system was embedded and mature. Stage 4 would comprise a mature, embedded system. Stage 4 would set a new standard of service that other service operators could copy, leading to the transformation and upgrading of all existing transport services, as required in the Public Transport Strategy.

While the fairly linear approach from planning to operations is theoretically rational, it is not necessarily practical. It is evident from the various UDAPs that the different municipalities perform better in different areas for a variety of reasons. In order to maintain project momentum, the type of template fashioned to chart municipal UDAP development has to be flexible enough to include varying levels of progress in different areas. The often highly volatile situation in some municipalities impacts on service delivery. The ability of the municipality to maintain the focus on programme delivery is affected by a myriad of events, some of which may be beyond the control of the implementing team. The loss of technical skills on the implementation of disability equality at all levels of government since 2005 is a concern. It was already evident in 2009 at the start of the implementation of IPTNs that built environment professionals (planners, developers and building inspectors) had little or no knowledge of the SABS standards referenced through both PEPUDA from 2000 onwards, or of the building regulations. Planning, compliance and enforcement mechanisms are historically weak (Gibberd, in Watermeyer et al., 2006), and this situation was well known to the professions with responsibilities in the built environment (Karusseit & Gibberd, 2009).

4.6.7 Institutional development

The PTNG Guidelines and Requirements (DoT, 2016a), produced by the PTND in support of grant implementation, have consistently indicated the appointment of an access consultant in line with the Accessible Public Transport Strategy. As figure (r) explains, the access consultant plays a critical role in capacity-building programmes due to the need to provide advice tailored to the unique problems of

a particular city. The South African Constitution (RSA, 1996b) protects the independence of each sphere of government. The DoT can thus guide municipalities on the appointment of an access consultant, but the city may or may not decide to appoint one. Initially, the UDA presumed that the access consultant would be appointed directly to the municipality because it is responsible for implementation. Unfortunately, one of the main costs of the projects has been the project management units, and one of the cost drivers for universal access has been the subcontracting of the expertise, thus inflating the price.

The DoT circulated terms of reference for the appointment of the access consultant at the beginning of the project and has recirculated them periodically ever since. However, when the access consultant is appointed through a project management company, a sphere of government no longer controls the terms of reference. This has led to the limiting of capacity development within the municipality by the project management company.

The terms of reference and skills set produced by the DoT advise on the appointment of an access consultant. The appointment process is a further concern. The municipality may choose to appoint an access consultant with or without sufficient experience and relevant qualifications in the field. It is apparent in some of the UDAPs and supporting documents received by the DoT that municipalities have occasionally appointed access consultants that do not meet the terms of reference provided by the DoT, or feel that an access consultant is irrelevant to the ability to gain contextual knowledge. In cases where an access consultant is appointed without relevant qualifications and/or experience, the advice received from the consultants has been less than adequate. There are associated cost implications for receiving the wrong advice. In particular, there is evidence in the transport survey findings, when conducted, of limitations to the rights of people with disabilities through the way in which the available information is interpreted, which appears to be unconstitutional, as well as instances of using the wrong standards and consequently not achieving the project outcomes with respect to infrastructure.

The situation is made more difficult when it is clear that municipal staff themselves have not undergone any, or only minimal, capacity building in universal access, yet would still prefer to appoint an external consultant with no qualifications or insufficient experience in the field, or would prefer not to seek expert advice. As the Literature Review indicates, the cost implication of making a mistake that requires the serious expenditure in retrofitting for universal access is an extremely high risk. The cost of having a disability becomes exceptionally high in a disablist society. This is especially true where inclusive transport planning could have led to better social outcomes and a more integrated city.

Municipalities have a constitutional obligation to deliver on the right to equality for all their residents, including people with disabilities. This may be difficult due to the extent of the barriers present. However, municipalities need a UDAP to help maintain that commitment over time. Inclusive transport planning has been noticeably missing on several of the DoT's site visits. Some of the other issues that have delayed implementation are the formation of business arrangements with the minibus taxi industry (industry transition), automatic fare collection, planning approvals, ordering of buses, and at a very fundamental level, project support at political level. Any one of these problems can lead municipalities to flounder, and produce transport systems (or UDAPs) that are not in line with national legislation and policy.

4.6.8 UDAP for the right stage of project development

As universally accessible transport is but one programme of IPTN implementation, problems with its development are, on their own, not severe enough to stop the transfer of the grant. It can be difficult to prevent both the transport system and the UDAP from veering off track. The UDA created the summaries shown in Figures (p) and (q) as a visual gauge to reflect progress in UDAP development within the IPTN.

Figures (p) and (q): Evaluation of progress on universal access

Figure (p): GoGeorge evaluation of progress on universal access

Figure (q): Rea Vaya evaluation of progress on universal access

Source: Author's own

The formation of these gauges is still at an early stage. However, Figure (p) clearly shows that the GoGeorge project is on track (as indicated in green), with the IPTN developing in tandem with the UDAP, whereas Figure (q) shows that the Rea Vaya system in Johannesburg is not on track (as indicated in red). This should be a cause for alarm in Johannesburg, especially as the Rea Vaya IPTN system is more established than the GoGeorge system, as the grey arrow indicates. Johannesburg is South Africa's largest city with the most residents, and receives a larger proportion of the PTNG, yet the process of UDAP development is more in line with the IPTN progress on the GoGeorge system (yellow arrow) and the implementation of minimum standards supporting universal design on the transport system (bottle green arrow). In the case of Rea Vaya, both UDAP development and the implementation of universal access standards are lagging far behind the development of the IPTN. It is of note that in George, the provincial government supports the municipality not only in terms of UDAP implementation, but also urban development. Johannesburg has not had the same level of support from the province, as Figure (g), demonstrated in the Literature Review. Ekurhuleni and Tshwane, likewise, are not supported by the province in terms of development planning. The role of provincial governments in supporting local development is an area that requires further study.

The UDA uses submitted reports as evidence of progress. However, the effect of an accessible transport system is the desired outcome, not the submission of specific reports. Despite this, however flexible the monitoring and evaluation system is, the fact remains that reports must be submitted to reflect evidence of implementation, but the DoT is currently not receiving such reports. The documents that are submitted by the municipalities do not contain the kind of detail envisaged by the DoT, and the pace of progress does not appear to equate to the amount of money spent. The reasons for this situation are explored in Part II.

4.7 SUMMARY OF FINDINGS FOR RESEARCH QUESTIONS A & C(i)

The DoT developed tools and methods for implementing new, universally accessible public transport in IPTN municipalities. The approach used the social model of disability by combining an inversion of a typical approach to occupational performance used in occupational therapy, with a standard project management approach for project implementation. This plan is known as the Universal Design Access Plan (UDAP).

It has been relatively straightforward to develop municipal implementation tools due to the existing strong policy and legislative framework supporting universal access in public transport. However, municipal use of the policy and legislative framework, as well as subsequent performance, vary in

different areas for a variety of reasons. It is common for IPTN systems to perform better in other areas of the IPTN system roll-out than in the universal access area. The lack of performance with respect to universal access is a high risk because of the associated constitutional and legal issues. This finding is not uncommon for inclusion programmes (Das & Espinoza, 2019). It appears that the linear implementation approach is far too simplistic. An approach enabling non-linear development is possibly more suited to the experience in developing countries (2019: 101). Dr Sigamoney Naiker (2006) concluded similar findings on the lack of implementation of Education White Paper 6 in schools (2006: 2).

Although it is easy to become despondent about progress, it should firstly be noted that these implementation plans are fairly new throughout the world (UN, 2018b) despite the advanced and historic nature of South African policy. Moreover, although the Moving South Africa study (DoT, 1999) provided a 20-year timeframe for implementation, from 1999/2000 until 2019/2020, this timeframe did not allow for the development of legislation, which in the case of the DoT took ten years. Only ten years of project implementation has thus taken place, not 20 years. Whether or not an entirely universally accessible transport system can be implemented nationally in the next ten years remains to be seen. There are additional problems apart from the historic national barriers created in the urban form. Secondly, Michael Szporluk (2009) indicates that in other developing countries or at an international level, the responsibility for developing an implementation plan within an accountability framework usually lies with the NGO sector (2009: 341 & 347). In South Africa, PEPUDA places accountability squarely with the government (at whatever level). The WPRPD (RSA, 2015c: 131 & xxxiii) requests people with disabilities and their organisations to report on their experience of equality and inclusion, or lack of it, directly to the government.

Sigamoney Naicker (2006: 4–5) describes delays in achieving a single inclusive education system, the Revised National Curriculum Framework. He identifies a superficial approach to retraining, entrenched historical thinking, and institutional exclusion as the main barriers to implementation. Without change in the 'theory of knowledge' in the underlying theoretical framework, he concludes that inclusive education will not materialise within the intended 20-year timeframe.

Both government and the private sector have to be aware and knowledgeable to implement a programme to achieve disability equality. In a study of built environment professions at the University of Pretoria, Catherine Karusseit and Amanda Gibberd (2009: 67–68) found that only 57% of respondents were aware of PEPUDA. Of those, 83% had little or no knowledge of their legal responsibilities, and 95% of

professionals interviewed admitted that they were unclear how to use minimum standards to support universal design, or were unaware of them.

4.8 PART II: THE UNIVERSAL DESIGN ACCESS PLAN

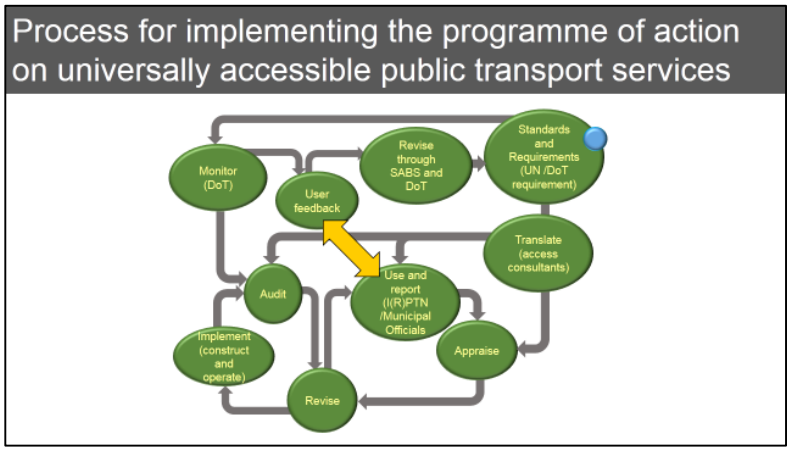
Part II of Chapter 4 deals with the research and findings on the UDAP as an implementation tool at operational level in the 13 IPTN municipalities. The evaluation of the UDAP forms Research Question B, and compliance, C(ii). Part II examines the results of municipal UDAP development, as a required output of the PTNG. UDAP development takes place within the Enabling Environment Programme outlined in the Accessible Public Transport Strategy, examined in Part I.

The PTNG requires compliance with the grant conditions and alignment with the annual PTNG Guidelines and Requirements (D0T, 2016a). The 'separate but integral' reporting on the UDAP emphasises disability equality as an identifiable and distinct, but inclusive, rights-based element (McClain-Nhlapo et al., in Watermeyer et al., 2006: 100) within a programme of service delivery. The DoT reports to the Presidency on implementation in terms of the WPRPD and the UNCRPD. The findings examine progress with implementation set against PTNG expenditure. Municipalities are required to provide evidence of UDAP development, presenting this annually to both the DoT and the Presidency as part of the budget submission process. The UDA held the first UDAP development reporting workshop in 2016. It was not possible to hold the second in 2017 due to municipal instability before the change in the President of South Africa in 2018. Reporting workshops took place in 2018 and 2019.

4.9 MATERIALS AND METHODS

The expected process for UDAP implementation is explained in the PTNG Guidelines and Requirements (DoT, 2016a) and summarised in Figure (r).

Figure (r): Process for developing the UDAP, within the Enabling Environment Programme



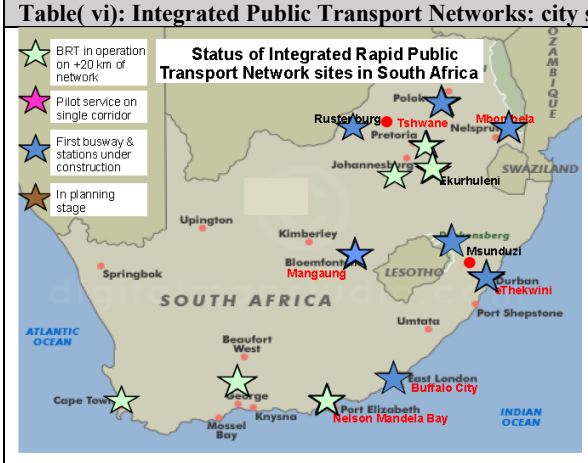
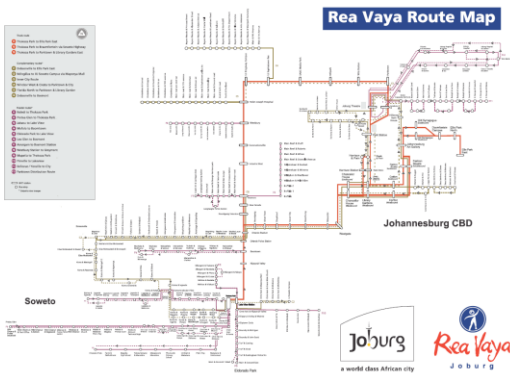
Source: Author's own

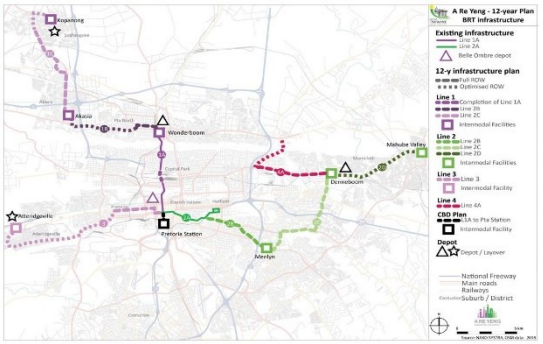
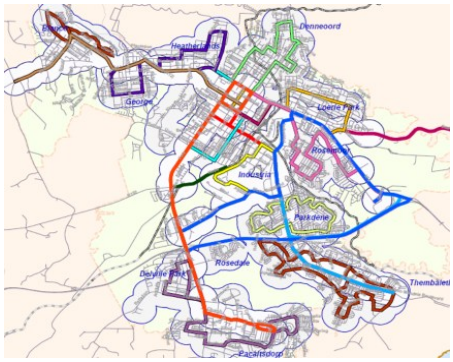
4.10 MATERIALS

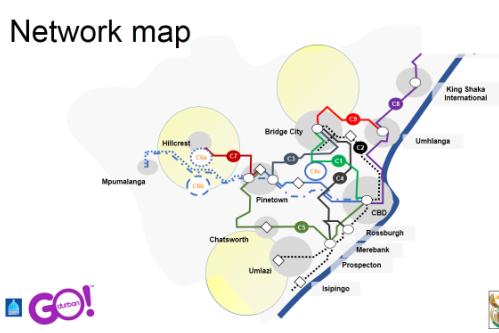
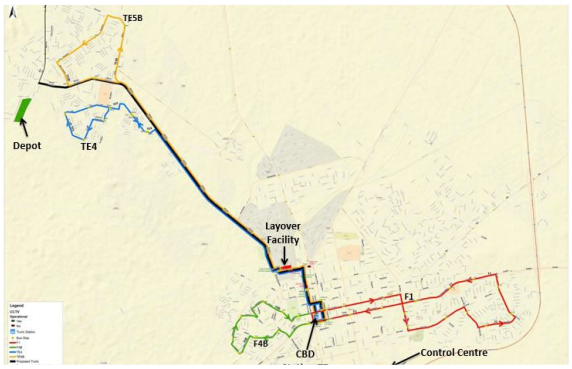
As the transport system is the object of evaluation in this master's dissertation, the 13 IPTN municipalities become the 'materials' for evaluation. They are summarised in Table (vi). The current or anticipated extent of the networks is provided (PTND, 2019b):

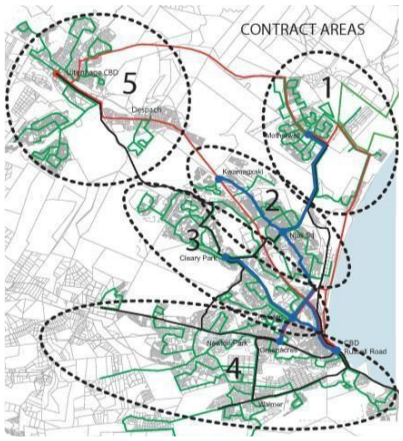
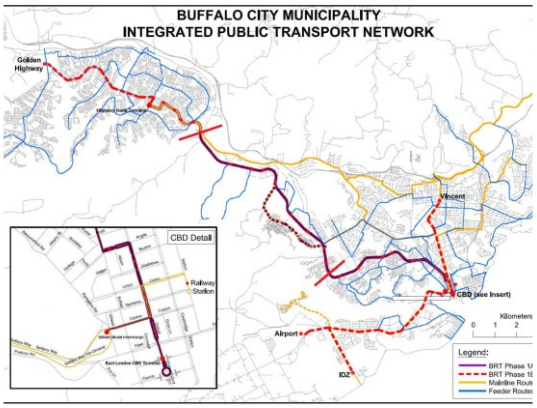
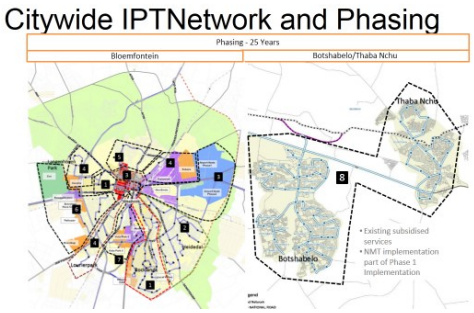
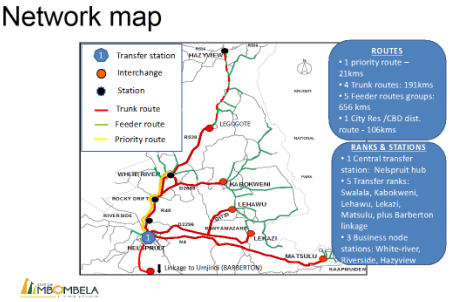
4.10.1 Integrated Public Transport Networks: city summaries

The 13 integrated public transport network municipalities accommodate around 50% of the national population. Continuous growth in urban centres is set to continue, with an estimated 71% of the population living in cities by 2030 (Mlambo, 2018). Summaries of municipal data and networks are presented in Table (vi).

Table(vi): Integrated Public Transport Networks: city summaries			**2019**
			
City networks		**City of Johannesburg (UA network covers 13%)**	**Rea Vaya**
National statistics		Length of time in operation	11 years (2009)
National population 2011	58,856,612 pp (people)	Average weekday passengers	56,493 pp

Table(vi): Integrated Public Transport Networks: city summaries			2019
National population 2019	58,775,022 pp	Size of current UA network	43 km^2
Geographical area (South Africa)	1,221,037 km^2	Municipal population	4,434,827 pp
Unemployment rate (2019)	38%	Municipal population density	2,696 pp/km^2
Life expectancy: male/female (2019)	61.5/67.7	Size of municipality	334.81 km^2
People with disabilities (2019)	7.7%	Unemployment rate (2019)	31.7%
Total PTNG from 2009–2018	R55,332,000	Contribution to national GDP	16%
		PTNG received to 2018	R11,999,000
Population Gauteng 2019	15,176,116 pp	Allocation for 2019	R1,112,936
			
Ekurhuleni (UA network covers 0.01%)	**Harambee**	**Tshwane (UA network covers 0.02%)**	**A Re Yeng**
Length of time in operation	2 years (2017)	Length of time in operation	5 years (2014)
Average weekday passengers	2,834 pp	Average weekday passengers	7,703 pp
Size of current UA network	18.5 km^2	Size of current UA network	133.73 km^2
Municipal population	3,178,470 pp	Municipal population	2,921,488 pp
Municipal population density	1,609 pp/km^2	Municipal population density	464 pp/km^2
Size of municipality	1,975 km^2	Size of municipality	6,368 km^2
Unemployment rate (2019)	35.5%	Unemployment rate (2019)	31.4%
Contribution to national GDP	8.8%	Contribution to national GDP	9%
PTNG received to 2018	R2,849,000	PTNG received to 2018	R7,230,000
Allocation for 2019	R694,640	Allocation for 2019	R808,194
			
Population Western Cape (2019)		**6,844,272 pp**	
Cape Town (UA network covers 6.29%)	**MyCiti**	**George (UA network covers 1.85%)**	**GoGeorge**
Length of time in operation	9 years (2010)	Length of time in operation	5 years (2014)
Average weekday passengers	53,152 pp	Average weekday passengers	13,248 pp
Size of current UA network	155 km^2	Size of current UA network	96.15 km^2
Municipal population	3,740,026 pp	Municipal population	193,672 pp
Municipal population density	1,530 pp/km^2	Municipal population density	37 pp/km^2
Size of municipality	2, 461 km^2	Size of municipality	5,191 km^2
Unemployment rate (2019)	23.4%	Unemployment rate (2019)	21.6%
Contribution to national GDP	9.9%	Contribution to national GDP	3.5%
PTNG received to 2018	R12,384,000	PTNG received to 2018	R1,037,000
Allocation for 2019	R694,640	Allocation for 2019	R808,194

Table(vi): Integrated Public Transport Networks: city summaries			2019
			
Population Kwa Zulu Natal (2019)		**11,289,086 pp**	
eThekwini	**GoDurban**	**Msunduzi**	**No name yet**
Length of time without operating	9 years	Length of time without operating	9 years
Passenger numbers per week	Not operating	Passenger numbers per week	Not operating
Size of current UA network	Not operating	Size of current UA network	Not operating
Municipal population	3,442,361 pp	Municipal population	618,536 pp
Municipal population density	1,502 pp/km^2	Municipal population density	976 pp/km^2
Size of municipality	2,297 km^2	Size of municipality	634 km^2
Unemployment rate (2019)	28.9%	Unemployment rate (2019)	50%
Contribution to national GDP	15%	Contribution to national GDP	1.19%
PTNG received to 2018	R7,424,000	PTNG received to 2018	R1,159,000
Allocation for 2019	R883,887	Allocation for 2019	R199,104
			
Limpopo	**5,982, 84 pp**	**North West**	**4,027,160 pp**
Polokwane	**Leeto La Polokwane**	**Rustenburg**	**Ya Rona**
Length of time without operating	9 years	Length of time without operating	9 years
Passenger numbers per week	Not operating	Passenger numbers per week	Not operating
Size of current UA network	Not operating	Size of current UA network	Not operating
Municipal population	628,999 pp	Municipal population	549,575 pp
Municipal population density	167 pp/km^2	Municipal population density	161 pp/km^2
Size of municipality	3,765.97 km^2	Size of municipality	3,423.26 km^2
Unemployment rate (2019)	41.3%	Unemployment rate (2019)	44.4%
Contribution to national GDP	7.2%	Contribution to national GDP	4.9%
PTNG received to 2018	R1,567,000	PTNG received to 2018	R3,589,000
Allocation for 2019	R205,107	Allocation for 2019	R298,212

Table(vi): Integrated Public Transport Networks: city summaries			2019
			
The population of the Eastern Cape (2019)		**6,712,276 pp**	
Nelson Mandela Bay (UA network covers 3.33%)	**Libhongolethu**	**Buffalo City**	**No name yet**
Length of time in operation	6 years (2013)	Length of time without operating	9 years
Average weekday passengers	8,370 pp	Passenger numbers per week	Not operating
Size of current UA network	65 km^2	Size of current UA network	Not operating
Municipal population	1,152,115	Municipal population	755,200
Municipal population density	588 pp/km^2	Municipal population density	298 pp/km^2
Size of municipality	1,957 km^2	Size of municipality	2,536 km^2
Unemployment rate (2019)	38.3%	Unemployment rate (2019)	36.4%
Contribution to national GDP	2.8%	Contribution to national GDP	1.57%
PTNG received to 2018	R2,795,000	PTNG received to 2018	R498,000
Allocation for 2019	R304,942	Allocation for 2019	R95,165
			
Population Free State (2019)	**2, 887, 465**	**Population Mpumalanga (2019)**	**4, 592, 187**
Mangaung	**Hauweng**	**Mbombela**	**No name yet**
Length of time without operating	9 years	Length of time without operating	9 years
Passenger numbers per week	Not operating	Passenger numbers per week	Not operating
Size of current UA network	Not operating	Size of current UA network	Not operating
Municipal population	747,431	Municipal population	588,794
Municipal population density	119 pp/km^2	Municipal population density	109 pp/km^2
Size of municipality	6,284 km^2	Size of municipality	5,394.4km^2
Unemployment rate (2019)	37.4%	Unemployment rate (2019)	43.1%
Contribution to national GDP	5.1%	Contribution to national GDP	7%
PTNG received to 2018	R1,281,000	PTNG received to 2018	R1,520 000
Allocation for 2019	R234,831	Allocation for 2019	R203,454

Sources of information	
Length of time without operating	DoT UDAP presentations (2019)
Passenger numbers per week	DoT PTND quarterly reports Q3 (2019)
Size of current UA network	DoT UDAP presentations (2019)
Municipal population	StatsSA (2019a)

Table(vi): Integrated Public Transport Networks: city summaries	2019
Municipal population density	Population/municipal area
Size of municipality	StatsSA (2011)
Unemployment rate (2019)	StatsSA (2019b)
Contribution to national GDP	StatsSA and municipal IDPs (2015 to 2019)
PTNG received to 2018	DoT presentation to director-general (July, 2019)
Allocation for 2019	DoT presentation to director-general (July, 2019)
Source: PTND	

The information in Table (vi) has been provided to illustrate both the scale of the project and the expected outcomes in terms of the Public Transport Strategy and Action Plan, namely that the provision of an accessible city will have a positive impact on the economic viability of South African cities as well as providing a universally accessible transport system (RSA, 2007b). Table (vii) shows the amount of money that has been received since 2010; whether the system was operating in 2020, and to what extent. It also shows the unemployment rate, since one of the motivations for the new accessible transport system would be to ensure that people, both with and without disabilities, who are unable to find work would be able to use the system to do so. Due to the slow implementation of the networks, their effect on alleviating unemployment is not possible to measure, as Jill Hanass-Hancock and Nicola Deghaye (2015) indicate. There is moreover no guarantee that a person with a disability would live near a transport system that they could use, or that they could get to their destination of choice. The same limitations would apply to educational trips. The most successful project to complete a positive network effect thus far has been in Cape Town.

During the evaluation of the Accessible Public Transport Strategy in 2010, it became apparent that several programmes for UDAP development were missing. The NLTA (RSA, 2009a: chapter 1, section 8(y)) identifies the need for regulations on facilities and vehicles, and other sections of the NLTA indicate that universal access to transport services will impact on many areas affecting regulation. The NLTA (chapter 2, section 11(1)(c)(xiv)) gives municipalities the responsibility for ensuring the provision of universal access in planning, and for providing public transport infrastructure, facilities, operations and services. Compliance with urban planning and building regulations are likewise municipal responsibilities (RSA, 1998b; 2000a).

In considering the performance standards and programmes outlined in the Accessible Public Transport Strategy, it was clear that several other programmes affecting the provision of universally accessible transport needed attention, and that the programmes identified in the Action Plan of the Accessible Public Transport Strategy would not fully address universal access to public transport. The performance standards for the travel chain were also not complete. The UDA therefore included a revised set of programmes and performance standards in the UDAP template (DoT, 2013b).

The network planning stage is critical, and its effects on the operation of the service cannot be underestimated. If a bus stop or station is planned on a hill, for example, how will people with disabilities, who are unable to walk up steep slopes, be able to get to and from this bus stop? When decisions are taken about the siting of the bus stop or station, what are the universal access elements that should be examined in order to take decisions about the placement of the stop or station? To be able to apply minimum standards – which directly affect people with disabilities and have been present as applicable national standards since 2011 – how should a station or stop precinct be both planned and designed?

There are other broader questions. If the public transport system is to be used as a catalyst for future development, what universal access features of the stop or station may not be compromised because of the long-term implications of its siting? How should the buildings around the bus stop or station be planned, as development takes place, so that the entire precinct becomes universally accessible? Thus the planning principles of a public transport network and their bearing on universal access are quintessential to successful system implementation. Furthermore, the planning of transport networks directly impacts on the operations. If a driver cannot pull up to a bus stop so that passengers can alight directly from the bus on to the sidewalk, a passenger (with a disability) is likely to injure themselves. If the passenger is injured, is the driver liable for the injury where negligence can be proven, or was this problem created by the planning, design and construction of the stop?

If the universal access requirements and design elements of the siting of the stop were not part of decision-making in the planning process, then the stop could be placed in a location that affects the ability of the driver to enable the passenger to board and alight safely, equitably and with dignity. This is a health and safety issue, and health and safety laws apply. A similar situation in Australia was responsible for the gravity with which the Australian government apportioned its disability discrimination legislation (Australian Human Rights Commission, 1997). The additional research undertaken for the Programme of Action in Australia thus expanded the programmes of the travel chain to include the following: network, operations, marketing and communication, passenger information, fares, wayfinding and signage, infrastructure and vehicles. Evaluation of the implementation of these programmes over the last ten years has demonstrated that they form a fairly comprehensive set. Further work is required on the evaluation of key interventions, testing of the travel chain elements, performance standards and indicators.

4.11 METHOD

The Moving South Africa study (DoT, 1999) and the Public Transport Strategy (RSA, 2007b: 18) estimated that it would take 20 years to implement the transformed public transport system in three phases. There was thus a reasonable expectation that by 2020, phase 3 would have been reached, implying that most of the systems should have been implemented. This has not happened. This demonstrates the importance, in particular, of the other transformation programmes in the Public Transport Strategy, not universally accessible transport alone; and the role of city planning in achieving the goal. Transport planning and operations require the coordination of several different municipal units, which have not necessarily worked together historically, to reach the desired outcome.

There are other universal design issues for public transport vehicles, necessitating the development of standards, which the NLTA prescribes. Using buses as an example, the following issues remain fundamental design decisions that have already been taken in a number of other countries, as the literature review demonstrates: whether buses should have lifts, entry through the same door for all passengers, and the available quantity and choice of seating (positions) at a realistic cost. The design of the vehicle goes hand in hand with decisions on the following: service operation, duration of the journey, frequency of stops, and how long the public transport vehicle would stop at each station.

These variables affect the universal design decisions taken to determine the vehicle specifications; different solutions are required, depending on these variables. The PTND has used the universal design and access transformation objective of the Public Transport Strategy programme to come up with innovative practice, including the design and building of a universally designed minibus taxi (DoT, 2020). In a bus system, the focus is inevitably on the design of the vehicles. As can be seen, however, the elements of a public transport programme (especially in its broader sense) are far greater.

There are perceptible problems with municipal recognition of the status of a programme on universal access. Its placement appears incongruous within the current system of planning and implementation of transport systems. Its effects are disruptive and disturbing, upsetting the status quo, as experienced in the development of National Technical Requirement 1 (NTR 1) on pedestrian crossings. Ironically, progress became noticeably slower between 2016 and 2019, whereas the introduction of a minimum requirement on the implementation of universal access ought to have had the reverse effect. Slower progress, in turn, is reflected in grant under expenditure. The solution and rationale for cutting the grant are indisputably correct. Nevertheless, the removal of the grant is not the same as the removal of the barriers that both transport systems and the urban environment currently create. This is a ‘cost of

disability' concern, despite justifiable reasons being claimed for the lack of resources to fix the problem. Vulnerable groups bear the burden, including people with disabilities, who are already most affected by transport poverty. This problem is not unique in transformational government programmes and is explored in Chapter 2, the Literature Review, in the section on the cost of universal access.

The initial UDAPs were described as living documents, to be updated as the transport system evolved. These documents should be public documents that would be used to explain or justify to the public any decisions taken by the municipality with respect to universal accessibility of the new public transport system through the NLTA (RSA, 2009a), how they would be able to use the system (NLTA, Chapter 2, Section 2c(xiv)) and when they would be able to use a system that was accessible to them (NLTA, Chapter 2, Section 5).

The experience of implementing projects within the 20-year timeframe anticipated by the Moving South Africa study suggests that a cautious approach to transformational implementation is required, with realistic dates. The South African Constitution establishes the independence of municipalities with respect to planning. The UDA therefore took the approach of requiring municipalities to develop the timeframe required in Figure (k), to allocate roles and responsibilities, and to undertake the activities required to achieve the outputs provided in the UDAP template. In addition to the expectation of municipal control over a function that belongs to them (RSA, 2009a; RSA, 1977, as amended, 2008; RSA, 2000a), the PTNG requires municipalities to set milestones and monitors them accordingly (DoT, 2016a). The development of the IPTN system is specific to the milestones set by a particular municipality. It is not possible to require the same annual milestones to be achieved in each of the 13 municipalities, but they all have an obligation to demonstrate progress in implementing the transformative plan required in relevant legislation (RSA, 2009a; 2000a). Municipalities consistently identify capacity development as a need, and have done so since the start of the project (PTND, 2018e). The problems with the development of the NTR 1, as discussed in 14.3.1 below, are not minor in nature, and create their own distinctive barriers to implementation unless they are addressed.

4.11.1 Grant expenditure

National Treasury allocates a municipal grant for each municipality from the total budget for the IPTN projects, as gazetted in the Division of Revenue Bill (National Treasury, 2010–2020). The PNTD is the accounting officer for the PTNG. Over the past decade, the grant has gone through several iterations to work out the best way of dividing the funds between planning, construction and operations. This has resulted in a formula of fund allocation based upon the size of the municipality, the number of residents, and the number of passengers using the system. These factors explain the allocation and expenditure of

funds, as shown in Table (vii). The DoT expects municipalities to contribute a percentage of their rates income to IPTN projects, and there is an incentive for outstanding progress. If during the year concerned, any money not spent in line with grant conditions cannot be reallocated by the DoT, it is returned to National Treasury. Table (vii) shows the amounts transferred to municipalities from the inception of the PTNG in 2008/09.

	Table (vii): PTNG allocations (PTNG) and expenditure (EXP): 2008/09–2012/13 (Rand million)												
		PTNG 2008–2009	**EXP 2008–2009**	**PTNG 2009–2010**	**EXP 2009–2010**	**PTNG 2010–2011**	**EXP 2010–2011**	**PTNG 2011–2012**	**EXP 2011–2012**	**PTNG 2012–2013**	**EXP 2012–2013**	**PTNG subtotal 2008–2013**	**EXP subtotal 2008–2013**
1	Johannesburg	661	661	653	652	1,300	952	1,700	1,274	1,310	880	**5,624**	**4,419**
2	Ekurhuleni	8	8	28	8	20	4	10	8	55	23	**121**	**51**
3	Tshwane	260	260	565	370	100	70	50	27	886	751	**1,861**	**1,478**
4	Cape Town	425	425	332	817	1,018	1,035	1,608	85	2,449	2,198	**5,832**	**4,560**
5	George	–	–	–	–	–	–	–	–	–	–	**–**	**–**
6	eThekwini	625	625	377	580	330	106	30	2	725	105	**2,087**	**1,418**
7	Msunduzi	2	2	7	2	15	12	25	0	87	86	**136**	**102**
8	Nelson Mandela Bay	305	305	147	527	408	117	117	2	639	297	**1,616**	**1,248**
9	Buffalo City	8	4	31	1	71	1	–	0	182	13	**292**	**19**
10	Polokwane	143	143	66	77	60	46	10	0	83	41	**362**	**307**
11	Rustenburg	69	69	68	130	89	9	85	5	679	524	**990**	**737**
12	Mangaung	243	204	82	205	166	196	5	12	20	12	**516**	**629**
13	Mbombela	170	170	61	287	120	18	20	0	99	54	**470**	**529**
	Totals	**2,919**	**2,876**	**2,417**	**3,656**	**3,697**	**2,566**	**3,660**	**1,415**	**7,214**	**4,984**	**19,907**	**15,497**

	PTNG allocations (PTNG) and expenditure (EXP): 2013/14–2016/17 (Rand million)										
		PTNG 2013–2014	**EXP 2013–2014**	**PTNG 2014–2015**	**EXP 2014–2015**	**PTNG 2015–2016**	**EXP 2015–2016**	**PTNG 2016–2017**	**EXP 2016–2017**	**PTNG subtotal 2013–2017**	**EXP subtotal 2013–2017**
1	Johannesburg	1,112	675	1,066	872	1,151	1,037	1,015	1,015	**4,344**	**3,599**
2	Ekurhuleni	243	116	250	230	339	310	500	306	**1,332**	**962**
3	Tshwane	774	774	1,005	1,023	932	877	950	931	**3,661**	**3,605**
4	Cape Town	1,299	872	1,377	727	881	768	950	780	**4,507**	**3,147**
5	George	265	265	122	122	116	116	156	91	**659**	**594**
6	eThekwini	579	93	775	370	1,232	1,207	950	950	**3,536**	**2,620**
7	Msunduzi	101	43	100	69	213	55	200	191	**614**	**358**

8	Nelson Mandela Bay	185	87	230	200	186	28	–	–	**601**	**315**
9	Buffalo City	20	–	–	–	–	–	35	2	**55**	**2**
10	Polokwane	199	106	200	190	184	184	200	188	**783**	**668**
11	Rustenburg	630	300	520	128	552	446	285	273	**1,987**	**1,147**
12	Mangaung	20	20	30	15	48	48	200	178	**298**	**261**
13	Mbombela	124	43	195	154	116	70	200	122	**635**	**389**
	Totals	**5,551**	**3,394**	**5,870**	**4,100**	**5,950**	**5,146**	**5,641**	**5,027**	**23,012**	**17,667**

	PTNG allocations (PTNG) and expenditure (EXP): 2017/18–2018/19 (Rand million)								
		PTNG 2017–2018	**EXP 2017–2018**	**PTNG 2018–2019**	**EXP 2018–2019**	**PTNG subtotal 2017–2019**	**EXP subtotal 2017–2019**	**PTNG 2008/09–2018/19**	**EXP 2008/09–2018/19**
1	Johannesburg	918	603	1,066	912	**1,984**	**1,515**	**11,952**	**9,533**
2	Ekurhuleni	701	300	604	425	**1,305**	**725**	**2,758**	**1,738**
3	Tshwane	900	885	808	743	**1,708**	**1,628**	**7,230**	**6,711**
4	Cape Town	999	787	1,046	956	**2,045**	**1,743**	**12,384**	**9,450**
5	George	210	133	168	137	**378**	**270**	**1037**	**864**
6	eThekwini	917	194	825	516	**1,742**	**710**	**7,365**	**4,748**
7	Msunduzi	210	115	199	199	**409**	**314**	**1,159**	**774**
8	Nelson Mandela Bay	273	163	275	186	**548**	**349**	**2,765**	**1,912**
9	Buffalo City	56	46	95	101	**151**	**147**	**498**	**168**
10	Polokwane	217	114	330	214	**547**	**328**	**1,692**	**1,303**
11	Rustenburg	314	84	396	211	**710**	**295**	**3,687**	**2,179**
12	Mangaung	232	608	235	142	**467**	**750**	**1,281**	**1,640**
13	Mbombela	212	373	203	133	**415**	**506**	**1,520**	**1,424**
	Totals	**6,159**	**4,405**	**6,250**	**4,875**	**12,409**	**9,280**	**55,328**	**42, 444**

Table (viii) shows progress in developing the IPTN in each of the 13 municipalities in terms of the extent of the municipal networks, the acquisition of vehicles and the installation of infrastructure. As IPTN systems have been launched in only six municipalities, grant expenditure has not produced outputs in line with the allocations. This highlights the importance of being able to correlate the grant expenditure with the grant outcomes. If there is no mechanism for relating the two, grant expenditure tends to continue, without service delivery, thus inflating the cost of universal access. Two international studies compared the cost of projects that are planned and executed with the inclusion of universal design from the beginning, with the cost of adapting or modifying existing infrastructure in conjunction with absent municipal compliance procedures. Without accounting for inflation in construction costs, Adolf Ratzka (1994) in a study in the USA identified 0–2% additional outlay, and Lindsay Castell (2008) in a study in Australia identified a difference of 60%. Both the USA and Australia have significantly better compliance enforcement mechanisms for built environment projects than South Africa. As is evident in Tables (vii) and (viii), and in the 2018 WPRPD progress report (PTND, 2018e), most of the progress in IPTN rollout took place before 2016, as did most of the UDAP development, as Table (v) shows. All municipalities have experienced a decrease in project output since 2014 to 2015, despite grant expenditure continuing to rise, albeit at a slower pace.

4.11.2 Outputs and indicators

The UDAP annual reports provide data on both the system rollout and the municipal experience of implementation. The data collected covers all the programmes of the travel chain. Data on the network, infrastructure and vehicles are presented and discussed, because these programmes have provided the most reliable data. Other data are not reliable, the reasons for which are examined.

Table (viii): Output data on programmes of the travel chain: network, infrastructure and vehicles																									
	Johannesburg			**Ekurhuleni**			**Tshwane**			**Cape Town**			**George**			**eThekwini**			**Nelson Mandela Bay**			**Rustenburg**			
Years – cumulative totals **Indicators**	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	2016	2018	Cumulative	**Total**
Infrastructure																									
Stops with shelters								18	18	381	49	430	10	77	87					50	50		10	10	**595**
Stops (other)	231		231	4	12	16		64	64	313	32	345	467	117	644					35	35		70	70	**1405**
Stations	48		48		13	13	7	5	12	42		42				7		7		4	4	0	6	6	**132**
Non-motorised transport (km)	45.6		45.6	12	6.6	18.6				30.6	7	37.6	40	42	82	21		21	9.51	10.7	20.21	14.4	21	35.4	**260.41**
Accessible vehicles																									
18 m articulated bus: /low entry								7	7		20	20							24		24				51
18 m articulated bus: high floor	83		83							8	24	32													115
18 m articulated bus with lift																									0
12 m bus (low entry)							30	74	104		20	20	39	-3	36				1		1				161
12m bus with lift/ high floor	194		194							45	42	87													281
9–10.5 m midibus (low entry)										221		221	25	-1 +9	33										254
9–10.5 m midibus with lift																									0
6 m minibus (low entry)																									0
6 m minibus with lift (side entry)													31	5	36										36
6 m minibus with lift (rear entry)										21		21													21
Total																									**919**
Source: UDA: note that these are 2018 figures, reported by municipalities at the annual UDAP reporting workshop																									

Table (viii) illustrates, in part, the extent to which municipalities have executed their new transport systems. The two most established new bus systems are in Johannesburg and Cape Town, but with substantial growth in George. Ekurhuleni, Tshwane and Nelson Mandela Bay now run some services. None of the other seven municipalities have yet launched a bus service. One aspect of the problem of establishing the success of the project lies in the lack of ability of municipalities to launch a bus service, and another is the unavailability of supporting evidence. Table (viii) shows identifiable progress for some of the municipalities. The relative cost and the extent of progress are being investigated by the DoT and National Treasury, and do not form part of this dissertation. The DoT records the reasons for the lack of project implementation, which are discussed using qualitative data.

4.11.3 Control mechanisms

A critical part of the Enabling Environment Programme, examined in Part I of this chapter, is to establish and build municipal capacity on universal access. The annual UDAP reporting template therefore requires municipalities to examine their ability to implement the UDAP. Given that the function of the UDA is to provide an enabling environment to support municipalities in implementing accessible transport, evidence of municipal capacity through 'developing need' and 'met need' is required to inform the implementation of the Accessible Public Transport Strategy. The reporting template includes a qualitative data set, which is summarised in Table (ix). Areas of need with significantly higher frequency are circled in red, and the consequent action taken as a result of these specific areas of need in 2016 and 2018 is given. The notes in Table (ix) explain how the needs have been, are being or will be met. Evidence that a need has been met means that municipalities do not raise the concern the following year. Table (ix) is included in the annual report on the WPRPD and is also sent to municipalities.

Table (ix): Qualitative municipal data from UDAP development and reporting

Area of need		2016	2018	Year	Notes
		Frequency requested by municipalities			
EE1	Standards throughout the travel chain	IIIIIIII	IIIII	2016	NTR 1 on safe pedestrian crossings was researched and published in 2016, following the WPRPD Guidelines, which require research with people with disabilities. Municipalities should have been applying it from 2017 onwards.
				2018	There was a specific request for NTR 2 on buses and bus stops. ToRs were developed and submitted in 2017, but have still not been approved. The reasons for this are not yet clear.
EE2	Standards for consultation with UA passengers and training for them	II		2016	In 2017, the UDA undertook a transport study on an operating system with Tshwane (Thobela, 2017), which has been circulated to all municipalities, together with the results from the Polokwane planning study, and a study undertaken in 2013 by GAATES (an

Table (ix): Qualitative municipal data from UDAP development and reporting					
Area of need		**2016**	**2018**	**Year**	**Notes**
		Frequency requested by municipalities			
					international NGO recognised by the UN), covering universal design and universal access.
				2018	Not identified as a need in 2018.
EE3	Integration of BRT/IPTN fares with other modes		I	2016	–
				2018	This is **new**.
EE4	Information on procurement of technical and professional knowledge, better access to it, and more municipal support	IIII	I	2016	ToRs on the appointment of access consultants were developed in 2013 and recirculated on request.
				2018	This has already been provided in the ToRs for the appointment of an access consultant 2013.
EE5	Auditing frameworks and checklists, and an information hub	III	II	2016	Audit frameworks and access auditing tools developed by the DSD in 2014 were circulated in May 2018 on request. (DSD, 2014)
				2018	Municipalities that received the access audit checklists did not provide any evidence that they had used them. The identification of a need for an information hub points to a broader need for capacity development on IPTNs in municipalities, which is being addressed through a capacity-building tender for municipalities, of which universal access is a part.
EE6	Training and guidance from the DoT, more frequent and regular meetings, as opposed to periodic	III	IIIIIII	2016	More detailed agendas were developed and more frequent meetings targeted, taking the available capacity into account. There was growing reluctance by some municipalities to appoint access consultants themselves.
				2018	The UDA is currently overstretched. It is still unclear why there is such reluctance to use the grant to appoint the professional assistance of consultants with UA qualifications. This needs further examination.
EE7	Forums to discuss universal access, greater municipal awareness and education	IIII	IIII	2016	See the point above. Part of the ToRs for the access consultant is to build institutional capacity.
				2018	There seems to be a greater need for discussion and sharing, which will now be explored.
EE8	Additional funding for universal access and for compliance	IIIIII	I	2016	This result is surprising, since the PTNG constitutes additional funding.
				2018	This result is surprising, since the PTNG constitutes additional funding.
EE9	Application of UA across all municipal and provincial grants	II	II	2016	This issue was highlighted to the DSD Disability Rights Branch and National Treasury.
				2018	This has not yet been addressed across government and is still highlighted as a problem.
EE10	Alignment with other engineering standards in transport	IIII	III	2016	The UDA engaged with the DoT Roads Branch, which led to a project to update the NMT Guidelines 2014/15 and to use the update as the basis for modifying the roads engineering standards. (COTO, 2012)
				2018	The integration of the NMT Guidelines (covering roadside road safety) with NTR 1 covering kerbside road safety), has not yet been completed, although the project started internally in 2017.

Table (ix): Qualitative municipal data from UDAP development and reporting					
Area of need		2016	2018	Year	Notes
		Frequency requested by municipalities			
EE11	More defined compliance process	IIII	IIIIIIII	2016	The UDA met with DPW and CBE. DPW and DSD worked on a transformation charter for professions in the built environment, which was signed in 2017 by all the built environment professionals, apart from Planners.
				2018	This has become a greater problem over the past two years.
EE12	National and international benchmarking	II		2016	A Zero Project Award was received in 2018 for best innovative policy.
				2018	Not identified as a need in 2018.
Source: UDA					

4.12 PRESENTATION OF FINDINGS ON UDAP DEVELOPMENT

The findings on the development of the UDAPs by the 13 municipalities are discussed in this section. Over the past ten years, the UDA has provided input to the municipalities through regular bilateral meetings, budget hearings and site visits. The evidence includes photographs, site reports, letters and access audits of concluded work provided by the access consultants to municipalities. Some of the municipalities have submitted some of these reports, but not all. The annual templates submitted by 12 of the 13 municipalities contain photographs (Buffalo City has thus far not reported, although city officials attended the annual UDAP reporting workshop). All the available evidence is considered in relation to the indicators provided in Table (viii). The data in Table (viii) are not sufficient on their own to make the interpretations provided in the following sections, but only to indicate that the amounts of money provided for bus services are possibly not warranted in comparison to the services delivered. It should also be noted that the money is provided for more than just the universal access element of the project. Other elements of the project are substantial, including minibus taxi industry transition, integrated fare technology, and environmental sustainability.

4.12.1 Network coverage

Network coverage is important in a universally accessible transport system. If the first and last mile of a journey are not accessible to a user with a disability or who is elderl, the person cannot rely on public transport as a viable alternative to car use or a (subsidised) door-to-door service for all or part of the journey.

Findings

The city with the widest municipal network is in Johannesburg, with 13% coverage. Because the city uses a high-floor system, the kerbside stops cannot be universally designed at the kerbside, only in the

median. Although Cape Town and George have less coverage, both these cities have been able to achieve a substantial network effect, as can be seen from the number of passengers that use the system. The system in Cape Town uses a mixture of high and low entry, with low entry at the kerbside. Cape Town has a door-to-door service for people with disabilities who are unable to complete the first and last mile. George has a regular quality bus service, with no median stations. George is relatively compact for a South African town, which makes it easier to plan a bus service. George joined the IPTN programme later than the other 12 municipalities, but has made more progress in less time, with less funding from the PTNG.

4.12.2 Application of universal design standards to the network

The inclusive walking distance in SANS 10400-S needs serious application if people who are elderly or who have disabilities are to use a public transport system. This is 50 m (SABS, 2011), which is not very far. Municipalities have not enforced minimum standards rigorously over the past ten years, and are therefore are not experienced in working with this measure. However, for a person with a severe disability, or an elderly person, fatigue is a very real barrier to the use of the built environment. Fatigue compounds throughout the day, which is why the use of a transport system in itself may be exhausting. Municipal (or provincial) government may choose a roads engineering standard that requires pedestrians to walk 50 m from a public transport stop to an intersection (COTO, 2012) simply to cross the road. The road may have been widened at the intersection to accommodate the bus lanes and more vehicle lanes, instead of being reduced to facilitate pedestrian crossing. The roads engineering standards used might thus be at odds with a universally planned and designed outcome.

Findings

Two important universal design factors have been observed in network planning through the site visits undertaken by the DoT in the past ten years. The first is effective control over vehicle speed through engineered solutions to achieve lower traffic speeds at intersections. Pedestrians must be given priority at designated crossing points if the transport system is to be safe for everyone to use, as intended in legislation (RSA, 1996c). In theory, this allows universal access pedestrians to cross the road in safety to reach their destination. Their inclusion requires a conscious effort to plan, design and execute speed reduction at intersections.

Current engineering solutions at intersections generally increase the speed of vehicles by widening lanes, increasing space and creating slip lanes. This increases the performance of the vehicle at the intersection, but removes space for pedestrians. Pedestrian safety is compromised as vehicle speeds increase (DoT, 2014). All 13 municipalities are requested to report on road accidents and fatalities

within the IPTN as part of the UDAP development reporting, but only three of 13 municipalities have done so. It is therefore not possible to analyse the extent of the problem. However, the national road accident fatality figures, which include a 41% fatality rate for pedestrians and cyclists (WHO, 2018a), strongly indicate that there is an unaddressed correlation between roads engineering standards and pedestrian deaths. The available evidence gathered in the DoT site visits confirms this.

The second finding is coupled with the first, and is related to the location of destinations around the public transport stop. Transit-orientated development (TOD) cannot be achieved without coordination of the placement of buildings and the public transport route. The inclusion of universal design as a tool for urban planning is thus an important issue. Unless planning decisions are supportive of universally accessible TOD, it may not be possible to introduce an accessible transport system. Distances to the desired destinations might be too far from the bus stop. Destinations are currently often positioned across a vast expanse of car park. This dissertation does not cover urban or development planning, but the government approach to oversight of such planning is profoundly fragmented, and institutional structures do not assist provincial or municipal harmonisation of planning decisions.

The members of the newly formed ICT Subcommittee on Universally Accessible Transport conducted a site visit to the new prototype low-floor station in central Johannesburg in November 2017. The members of this subcommittee are users with disabilities or their representatives. They confirmed that it was far too dangerous for vulnerable pedestrians to cross the road within the city centre due to the speed of passing traffic and, in their opinion, the extremely poorly planned and executed pedestrian precinct. Whether or not the stations are accessible, the members would not recommend the use of the public transport system for reasons of health and safety. It is worth noting that Advocate Tswaledi Sekwati, deputy state attorney, who was blind, was killed in September 2019 crossing the road, as he did every day, between the chambers where he worked in Prichard Street and the Johannesburg High Court, after being hit by a minibus taxi. Incidents must be investigated to establish the root cause of each problem, because it may not always be the result of lack of accommodation by the driver of the minibus taxi. It is difficult to attract people to a transport system if they do not feel safe when using it, especially if a lack of safety provisions makes them vulnerable.

From photographic evidence taken during the DoT site visits, it is of extreme concern that Msunduzi, eThekwini and Tshwane have constructed far bigger and potentially busier roads as part of their universally accessible transport systems. These cities have not yet included traffic calming around the stations, using minimum standards that support universal design. Furthermore, existing problems on provincial roads (notably in Mbombela, Ekurhuleni, Rustenburg and Tshwane) have not been

addressed. In Tshwane, intersections are often flared at the point where passengers cross, thus encouraging vehicles to speed just at the point where the intersection ought to be safer for pedestrians, rather than less safe. This intervention is currently being introduced around existing municipal bus routes, schools and parks – areas to which universal design standards should apply – which are part of the municipal IPTN and should be promoting public transport and pedestrian usage.

The cost of subsequent changes to accommodate vulnerable pedestrians is both high and unnecessary. Transport planning decisions should be taken with universal access in mind, because it has been a minimum requirement in Comprehensive Integrated Transport Plans since 2016 (DoT, 2016b) and part of PEPUDA since 2000. International guidance supports national DoT guidance to use engineering solutions to improve the safety of the pedestrian environment.

4.12.3 High floor versus low floor

BRT systems are traditionally either high or low floor. Systems in Latin America have historically been high floor, with access from the median (middle) of the street. South African cities have very long routes due to the problems of apartheid spatial planning, and require a more flexible approach that allows for kerbside stops, which have to be low-entry at the point of boarding.

Findings

Johannesburg and Cape Town have taken the decision to move from a high-floor bus system to a low-floor system. Although either system can be universally accessible, a high-floor system cannot provide universal access at the kerbside (Frieslaar, 2015). Unless the system has no kerbside stops, a high bus stop must be constructed at the kerbside with ramp access, which is not practical. The alternative solution is to use a lift on the bus, which creates operational problems and excludes people in wheelchairs who use larger mobility devices, which are often used by people with severe disabilities in external environments. The conversion from high to low floor has been a substantial transitional cost in Cape Town (from 2014) and Johannesburg (from 2016).

4.12.4 Eliminating the gap in boarding from kerbside to roadside

The use of a boarding bridge between the vehicle and the kerbside requires a built environment solution that is planned and engineered to enable the bus to align with the kerb so that the boarding bridge can be deployed. The risk created through lack of alignment between the kerbside (within the sidewalk) and roadside (within the roadway) on a traditional transport system means that pedestrians may injure themselves in the step down from the bus stop into the roadside, or up into the bus.

Findings

If the infrastructure is properly designed, a boarding bridge eliminates the risk of falling at the kerbside and is included on all new buses in the IPTN. Bus drivers must be properly trained and monitored to makes sure that it is used properly. The lack of using a boarding bridge; the incorrect design, specification or use of such a bridge; or mistakes in deployment have led to serious health and safety complaints from passengers with disabilities in three of the six operating municipalities. These have not been resolved, despite their serious nature.

4.12.5 Precinct development

Precinct development requires a thoughtful, considered approach and an appreciation of the human condition so as to enable integration between transport modes, for example, when it is necessary to walk between one mode of transport and another. Creating a universally accessible, vibrant, safe, secure and useful hub requires the placement of destinations within universally planned and designed walking distances around the transport precinct. Complex planning decisions need to be carefully executed to enable the flow of traffic around the precinct, safe and accessible movement of the different modes of transport, the delivery of goods, access for emergency vehicles, and a shift to safely accommodating universal access pedestrians and prioritising them over vehicles.

Findings

From the site visits conducted in all municipalities over the past ten years, and from the access audits submitted, there seems to be a lack of ability to apply minimum standards supporting universal design in planning precinct development or project execution. The reasons for this warrant further urgent investigation because of the legal implications.

4.12.6 Infrastructure

Since 2010, municipalities have applied SANS 10400-S (SABS, 2011) to the external built environment, through the inclusion of a condition in the PTNG, which is a conditional grant. This process has enabled the development of accessible public transport infrastructure in all six of the 13 municipalities where an IPTN is operating. Other factors are related to functionality, the quality of the work, and the manner in which the municipality complies with enforces standards. A bus stop is of questionable value unless it has a shelter, or if it is not possible to see the bus arriving from a seated position within the bus stop. The bus stop has to accommodate a person in a wheelchair or with a pushchair, and the seating must be designed so that an elderly person can use it. The bus stop must be slightly elevated so that the bus can dock with level, safe boarding through the use of a boarding bridge, but connected with the sidewalk to provide an accessible path of travel. Ramps, surface types and

cambers of the walking surface must provide safe passage for everyone. Shade and protection from wind and rain must be provided in an equal and dignified manner. Lighting is important after dark in order to provide a safe environment in which to walk or cycle. The practice of abutting a sidewalk to the roadway does not provide much protection for pedestrians; it is safer and easier to protect them with a buffer of vegetation between the sidewalk and the roadway. The NMT Guidelines (DoT, 2014) acknowledge this as a better solution, with a long history, nationally, in good urban design (Ribbens et al., 2008).

Findings

The UDA site visits and access audits, undertaken by municipal access consultants, demonstrate real problems in all 13 municipalities in relation to compliance with minimum standards. Access audits include recommendations, but the cost of implementing them raises the cost of the project as a whole. An aggravating factor is that because there is little compliance with standards in areas around the public transport stop, costs are escalated outside of the transport project, even though the same standards apply.

4.12.7 Vehicles

Table (viii) shows that there are 919 new accessible buses on IPTN systems. Standards for buses make provision for low entry; level boarding with the bus stop; a boarding bridge to remove the kerbside gap; space to accommodate one or more wheelchairs, pushchairs or additional luggage; and prioritised seating also on the same level. This is a nationally approved minimum standard, SANS 20107: 2009, edition 3 (EU, 2009). Seating on the bus should be designed to avoid passengers having to climb up to every single seat, which is a problem with the Gautrain buses. Raising individual seats is a particular problem when the bus approaches a bus stop, because the action of climbing down on a moving vehicle requires special driver training to minimise the risk of falling, which is why steps inside the bus have even treads and risers. The specification of the bus chassis is therefore important and has been a historic problem.

Findings

Municipalities (and the Gautrain) initially selected a high-floor system because of the widely available high-floor bus chassis, but several problems are apparent with this approach. If the seating for all passengers is provided on the level, a lift is required for kerbside access, as Rea Vaya currently uses in Johannesburg. A lift operated on a bus that stops frequently is neither rapid nor efficient. With a high-floor chassis, the floor level of the bus is dropped so that it becomes level with the kerb at the door, but the number of seats that can be provided on the level without raising individual seats is limited. Universal access passengers need more seats on the level, since they constitute most of the population.

This chassis, in turn, necessitates a lift and individually raised seats, which results in an inefficient service, and cumbersome passenger boarding and alighting. Better universally designed vehicles are already locally available in increasing numbers.

The locally available 'space frame' is used in the MyCiti service in Cape Town. These buses have the added advantage of a tighter turning circle created through the position of the wheels at the front, with minimal bus overhang. In this way, the design is similar to a minibus taxi, and far more convenient for narrower roads due to the tighter turning circle. The ability to include all the seating without raising individual seats then becomes possible, as well as providing space for a wheelchair user, a parent with a pushchair, or an elderly person with a walking frame. The MyCiti buses enable both kerbside and median bus docking, as do the Libhongolethu buses in Nelson Mandela Bay, A Re Yeng in Tshwane and Harambee in Ekurhuleni. Other systems such as GoGeorge in George use low entry, and enable level kerbside boarding. All systems use a boarding bridge to remove the kerbside/roadside gap.

Minibus taxi services are the most frequently used form of public transport all over the country. The advantages of the design of the minibus are its ability to penetrate townships far more easily than the traditional bus design, in the same way that the smaller MyCiti buses can. In a minibus taxi service, the vehicle itself provides shelter for the passenger from rain or heat before departing to the destination, due to the method of operation. The current minibus taxi vehicle designs are not accessible, but accessible designs are already locally available. There is no reason why the inclusion of a universally designed minibus taxi cannot form part of an IPTN service (DoT, 2020). A universally designed minibus taxi has been a particular research project of the DoT during this period, and a version is currently homologated for pilot testing. Its design allows no loss of seats if none of the passengers are wheelchair-users, and allows space for one or more wheelchairs (up to four in total) if required. This is an important innovation for door-to-door services that are universally accessible and should replace all on-demand services, as well as providing a new vehicle model for a traditional minibus taxi service.

Buses are the easiest element to define and report on in a public transport system, since buses are discrete, identifiable physical entities. Municipal reporting on the bus element does not cover the ability of the municipality, the public transport system, or the driver to provide the accommodations necessary for a universally accessible transport service. The indicators in the UDAP reporting template, aimed at defining the experience of the user, cover the number of complaints received by municipalities in terms of safety, comfort and convenience of the service. Other indicators – covering the availability and use of information, communication, wayfinding, operations and management, and marketing – are more difficult to define. The data gathered to date are not sufficiently clear to present with confidence. After

three years of use, it seems advisable that some of the more multifaceted targets should be further researched and refined. Factors such as safety in crossing the road, general security within public spaces, and air quality have not yet been captured. These factors are likely to have a significant impact on the possibility or desire to use public transport (or public space). Universal access passengers best describe their difficulties with public transport service operations through the passenger complaints received by the DoT (RSA, 2015b), and evidence from these complaints is included in the findings from municipalities, as discussed in the next section.

4.13 PRESENTATION ON FINDINGS ON UDAP REPORTING

The annual reporting templates provide a great deal of data (PTND, 2019; 2018e). It is not possible to present it all in this master's dissertation. The information from part of the annual data collected by UDA, an analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT), has therefore been chosen as the focus, demonstrating the real problems for municipal staff in implementing the Accessible Public Transport Strategy. The needs identified between 2016 and 2018 by UDA are discussed, and action taken during the 2018 to 2019 period is provided, as part of the Enabling Environment programme (EE).

4.13.1 EE1: Standards on universal design in transport

Existing SABS standards cover minimum standards for the network, infrastructure and vehicles. The UDA has piloted indicators in the UDAP reporting template (DoT, 2013b) to define the experience of the user. The lack of standards on universal design in some parts of the travel chain is a serious issue. Although standards can be found nationally for infrastructure and vehicles, standards on information for print, signage, website design, app design, alternative or augmentative communication and transport operations are not yet all nationally recognised, although internationally available. The UDA drew up the baseline for standards on national technical requirements (NTRs) from a gap analysis.

Pedestrian crossings were selected for the first NTR, because they are such a fundamental part of a transport system. A passenger or pedestrian has to be able to cross the road from one side to the other. The objective of the research for NTR 1 was to make the physical experience of crossing the road safe, equitable and dignified, from kerbside to kerbside. The findings illustrate the types of difficulties that may be encountered in trying to ensure compliance.

Findings

The development of NTR 1, the first technical standard, is summarised. During 2014 and 2015, the DoT published the NMT Guidelines, describing a wide range of traffic-calming methods, and explaining different options for the reduction of traffic speeds to support safe crossings (DoT, 2014). However, the NMT Guidelines did not include standards based on research with people with disabilities, because such research had never been undertaken. Moreover, there are historic questions over the design, use and layout of tactile paving in relation to tactile ground surface indicators. The adoption of an Australian standard (SABS, 2008) introduced internationally recognised tactile blocks and a system for laying them. However, SABS adopted an out-of-date Australian standard through a lack of effective consultation and internal knowledge (Standards Australia, 2002). As part of the programme for developing the NMT Guidelines, research was conducted in 2016. NTR 1 was released to IPTN municipalities in 2017 and made available on the DoT website. NTR 1 is used with the NMT Guidelines, because traffic calming is part of safe pedestrian crossings. The findings below are divided into issues affecting the roadside and the kerbside, and apply nationally to all 13 IPTN cities.

Roadside

One of the most important findings in relation to NTR 1 was that vehicles of all types (from private cars to public transport vehicles and trucks) travel too fast at intersections. This is the point where pedestrians are expected to cross the road and are protected by law (RSA, 1996c). In seeking to reduce speeds to enable safer crossing points for pedestrians, it was important to establish whether traffic speeds and lack of consideration of pedestrians were due to poor driver behaviour or other reasons.

The research for NTR 1 established a range of reasons for the lack of road safety for pedestrians. Driver behaviour was one such element; another was the ability of drivers to remain within the speed limit. Other reasons were beyond the control of drivers (Thobela & Gibberd, 2019). Road networks planned for towns and cities in many other parts of the world result in a far more diverse set of routes than in many of South Africa's newer urban areas. The limited national road provision allows more residential provision, especially in townships (whether new or built during apartheid), and the spacing of side roads from the main road in townships is significantly further than within town centres, which were historically planned in a very different way.

With side roads further apart, there are fewer options for drivers to get from origin to destination. It was observed during the research for NTR 1 that the speed of vehicles is affected by the lack of available transport routes. Furthermore, where municipalities have introduced security estates, these estates reduce the availability of alternative routes, forcing more vehicles on to the main routes, with adverse

effects on driver behaviour. Motorway-style road standards are thus introduced on roads that are not in fact motorways. Karina Landman (2004) made similar findings.

The research for NTR 1 demonstrated that reducing the kerb radius necessitates the slowing down of vehicles. Thus, a pronounced kerb radius provides an environmental feature that acts as a traffic-calming device. It is very simple, then, to apply the correct tactile paving layouts, thereby increasing sidewalk provision so that pedestrians are less vulnerable because they are allocated more protected sidewalk space. By providing or widening refuges in the median, by reducing the width of vehicle lanes, more pedestrian space is provided and vehicle speeds are reduced. All these measures are already included in the NMT Guidelines (DoT, 2014) and are used internationally (New Zealand Transport Agency, 2009; Litman, 2009; Mindell & Karlsen, 2012; Anciaes et al., 2014; 2017). The passage of freight or other larger vehicles, including fire trucks, is often given as the reason for requiring a greater number of wider lanes. Although these discussions have not been concluded, it is noticeable that the standards for accommodating larger vehicles (such as coaches and delivery trucks) in traditional town centres are different from those used elsewhere, and do allow for their accommodation, albeit at a slower speed. Segregating freight and through-vehicles from pedestrians is an important part of creating an accessible transport system and a safe pedestrian environment. Where rainfall is substantial, roads are often heavily cambered, which can make introducing an accessible crossing problematic (for example, in Cape Town). Unless properly executed, pools of water gather at the base of the dropped kerb, and blocked drains and lack of surface vegetation may exacerbate the effect. Part of creating a universally designed intersection is therefore to create effective surface water drainage from the site. These are the reasons why a planned and maintained solution, taken after thoughtful reflection on universal design principles, produces the best results. This is covered in NTR 1.

Kerbside

NTR 1 establishes a universal design for dropped kerbs and tactile paving using SANS 10400-S (SABS, 2011). It applies gentle gradients without surface thresholds, wider crossing points to accommodate bidirectional pedestrian movement (including the possibility of two people in wheelchairs crossing at the same time) and the removal of trip hazards, which are dangerous. These factors are especially important for older or younger pedestrians, people in wheelchairs or with pushchairs, or even cyclists crossing. NTR 1 identifies a new L-shaped layout of tactile paving, two blocks wide, throughout. It locates the pedestrian traffic control button at the base of the L, within reach of a person standing on the tactile warning. The pedestrian traffic control button, which is activated by the pedestrian, makes an audible sound to indicate when it is safe to cross. The research identified that the time allowance for pedestrians to cross the road is currently insufficient and needs to be increased. Vehicles need to stop

further away from the pedestrian space in the roadside, because of their average speed of approach. The research identified methods to speed up the ability of pedestrians to reach the other sidewalk for their own safety.

This research on the design of the roadside interventions required for safe pedestrian crossings has not yet taken place, due to the following. Since the publication of NTR 1 in 2016, there have been problems with ensuring that the recommended designs are applied and that they are aligned with the traffic-calming principles in the NMT Guidelines (DoT, 2014). This has raised concerns over the ability of a system of minimum standards to operate at all, as required by the NLTA. Consistency of application is extremely important in order to accommodate people with sight impairments. Unless standards are consistently applied, people who are not able to see receive confusing messages, and there is little point in applying any tactile paving. The safety of the pedestrian crossing remains a problem. Research indicates that if some safety measures are introduced for pedestrians, but nothing is done to reduce traffic speed, pedestrians are provided with a false sense of security (Zegeer et al., 2005). Given the lack of introduction of traffic calming, and in fact evidence of the reverse situation in some IPTN municipalities (Tshwane, Msunduzi and Ekurhuleni), universal design standards for this single element of the transport system have proved difficult to conclude.

4.13.2 EE2: Consulting with universal access passengers

The WPRPD requires consultation with people with disabilities. Given the historic underreporting on disability, it is often assumed that people with disabilities do not use transport. The alternative narrative is that they are not normally consulted, and their needs are usually not met.

Findings

The UDA conducted a study of operations on the A Re Yeng system in Tshwane (Thobela, 2017) as a result of the 2017 findings on EE2. This survey purposefully targeted people categorised as universal access passengers on the accessible bus system. The results demonstrated that 10% of the population interviewed on the bus had disabilities, which is significantly higher than the national average. A significant number of other passengers were defined as universal access passengers (21%). The study demonstrated that by introducing a more universally designed system, the number of passengers with universal access needs increases, as does the number of people with disabilities who use the system. A study conducted by Polokwane municipality, targeting people with disabilities, received 744 responses (Davies et al., 2016), all of whom were unable to use current public transport because of inaccessibility and safety. Of the people interviewed, around 40% were unemployed and roughly half lived on a monthly income of less than R2,000 (US$135). This study indicates that people with disabilities are not

usually included in surveys, and their needs are thus not known. Although they would like to be able to travel, they are not able to because transport systems do not accommodate them. The high level of unemployment among the respondents in this survey, which is above the national average, emphasises the link between inaccessible transport and the inability to find or maintain employment.

In 2018, the DoT completed a survey of aviation services due to an escalation in complaints (PTND, 2018a; RSA, 2015b). An online survey was devised to verify complaints. Over ten days, 91 responses were received. Although aviation services are expensive and not considered regular commuter transport, the response rate was rapid. The findings highlighted significant discriminatory practices in aviation services, which operators tend to accept as normal. Neither PEPUDA nor the WPRPD support direct discrimination against people with disabilities. PEPUDA clearly states that both the public and private sector are responsible for enabling the accommodation of people with disabilities, not the reverse.

The minibus taxi sector has responded to individual complaints about people with disabilities being excluded from services, and some of these cases have been resolved. Both the 2003 and 2013 National Household Travel Surveys and reports from NGOs indicate that people with disabilities are accommodated on minibus taxi services every day. Taxi associations in Gauteng undertake capacity building with BlindSA, a national NGO. In 2016, Disabled People South Africa (DPSA) requested the DoT to record complaints in eThekwini. Members of the DPSA had been run over and killed as a result of a minibus taxi dropping them into the street and not on the kerbside (PTND, 2018d). Over the past ten years, there have been other pedestrian deaths, leading to the need for an investigation of the causes. The results of the aviation study (PTND, 2018a) and in the Programme of Action on Universally Accessible Minibus Taxi Services (PTND, 2018d) demonstrate that passengers and pedestrians frequently experience discrimination based on disability. Other complaints received between 2019 and 2020 support this finding with respect to all forms of transport. It is of concern that complaints on a simple constitutional rights-based issue occur at all, and are generally never resolved (Appendix B). Although new IPTN systems are supposed to set a new precedent, it is noticeable that many of the complaints related to such systems also remain unresolved.

4.13.3 EE3: Integration of fares

All systems use their own discrete electronic ticketing system or continue to use a cash-based system. Unless the identified distribution and usage issues are addressed, a cash system is often easier.

Findings

Issues with fares and their integration have been raised through the ICT Subcommittee on Universally Accessible Transport and the complaints system. The problems cover the following areas: purchasing a card is impossible when passengers have to travel to a shop or station to buy one before they can travel on a system, because transport is inaccessible. The cards last for five years. People (with or without disabilities) may not know or understand that the card will expire, while people who are blind cannot see the expiry date. The card has a PIN number, which passengers are unable to access through a touch screen ticket machine. Once purchased and with money loaded, the card can only be used on the bus system. Another ticket is required (with the same expiry date and PIN problems) for other transport systems, requiring an additional fare-purchasing system.

An alternative process would be to create an online system so that a person with a disability (whether sight, intellectual, cognitive or other) could use an end-user device tailored to their individual needs. Payments on to the card (ticket) could be made through a system that is accessible to the individual, because the individual has already personally configured their end-user device. This approach is indicated in many of the municipal UDAPs, but no such system has been tested in any of the IPTN municipalities in ten years.

4.13.4 EE4: Appointment of universal access consultants

The DoT circulated terms of reference for the appointment of an access consultant (DoT, 2013a). One of the problems is the availability of national capacity-building programmes. This has now become the area of focus for the African Association of Access Professionals (AAAP). This association is similar to other emergent professional associations that have internationally developed the National Register of Access Consultants in the United Kingdom, the Australian Access Association, associations in Ireland and the USA, and the international Global Alliance on Accessible Technologies and Environments (GAATES). The Accessible Public Transport Strategy (DoT, 2009) recommended the establishment of an association or forum (2009: E6, Action Plan).

Findings

All IPTN municipalities have appointed an access consultant, with relevant qualifications, skills and experience. Given the current lack of capacity in municipalities, as evident from municipal reports, most have not appointed one for long enough. There is minimal institutional knowledge, and few new municipal procedures supporting changes to service implementation.

4.13.5 EE5: Templates for conducting universal access audits

Established literature is available on access auditing (Holmes Siedle, 1996; Centre for Accessible Environments, 1993). The audit frameworks and access auditing tools developed by the DSD in 2014 were circulated to IPTN municipalities in May 2018 on request.

Findings

To date, none of the IPTN municipalities have submitted a universal access audit conducted without the appointment of an access consultant. Johannesburg has, over the past two to three years, appointed an in-house member of staff with access expertise, which has resulted in a compliant new in-house municipal work not seen in most other municipalities. Access auditing is of limited use without understanding how to undertake an access audit, the standards used, or how to implement the findings.

4.13.6 EE6 and EE7: Training, capacity building and discussion forums

Given the turnover of staff in municipalities, it can be difficult for any programme to be implemented. Staff may not necessarily leave the municipality, but they may be moved between units. It is not clear whether the UDAP programme has achieved the consistent provision of information necessary to accommodate these frequent changes of personnel. It is likely that it has not, as EE6 and EE7 indicate. Although the UDA intended that a universal access consultant would provide support, this has not worked for the reasons outlined in EE4.

The DoT provides funding for IPTNs through the PTNG. The appointment of an access consultant is recommended, but municipalities are under no obligation to follow the advice of the DoT. They are furthermore under no obligation to follow the advice of any suitably qualified access consultant whom they might appoint. Due to the lack of enforcement mechanisms, it is highly improbable that any such advice would be followed. Effectively, the only recourse is when a person with a disability lodges a complaint in terms of PEPUDA, the NLTA, or both. This is a daunting process, steeped in failure, as the Foreword and Literature Review (Chapter 2) illustrate. The complainant may not have the time or energy to lodge the complaint. Even once the system is in operation, the cost of resolving the complaint may well be prohibitive to the municipality. If the cause of the problem relates to a decision taken during the planning of the IPTN, the resolution is likely to be expensive. Given these identifiable flaws with compliance mechanisms, equality outcomes will remain unmet.

Findings

Cape Town and George municipalities have taken deliberate steps to develop skills in UDAP development and implementation. These two municipalities have progressed furthest at the time of

writing. Of the municipalities that are in the planning stage, Polokwane emphasises capacity development and envisages launching soon. Nelson Mandela Bay has made progress very recently, enabling the municipal development of a passenger survey. All the other IPTNs demonstrate less consistent progress over the past ten years.

One of the main concerns arising from the 2016 UDAP reporting workshop and the subsequent one in 2018 (PTND, 2018e) was the lack of knowledge and application of **existing published** regulations and minimum standards. Following the 2018 UDAP reporting workshop, the UDA circulated several discussion documents or position papers on problems that had been raised over the period 2016 to 2018. The results are outlined in EE11.

4.13.7 EE8 and EE9: Universal access in all government grants

The 2018 UDAP development report reminded municipalities that the PTNG was a conditional grant. Universal access is one of the transformation objectives of the Public Transport Strategy. The PTNG constitutes additional funding to the municipal equitable share. The feedback from the 2019 UDAP reporting workshop (PTND, 2019b) emphasised the need for integration between different government grants to make it easier to implement universal access outcomes. EE8 and EE9 highlight the importance of universal access as a mechanism from an institutional and spatial-planning perspective. If a municipality is required to implement grants with different grant conditions, this is likely to affect the standards it applies, despite the pronouncements of national laws and minimum standards. If a municipality is required to implement universal access, and the government measures this outcome in terms of the conditions of a particular grant, the municipality is likely to take steps to measure its progress. If such measurement is not required, the municipality is less likely to measure its progress. If other minimum standards do not support universal design, the cost of implementation is loaded on to the grant that includes them.

Findings

Rustenburg municipality proposed the integration of municipal infrastructure grants in 2019 and is investigating the implications of the local application of such an approach. Given the responsibilities that legislation places on municipalities, National Treasury and the DoT have been surprisingly silent in voicing any support for this proposal.

4.13.8 EE10: Alignment with existing roads engineering standards

Existing roads engineering standards (COTO, 2012) have been developed without reference to universal access passengers in general, and pedestrians with disabilities in particular.

Findings

Municipal feedback has reinforced the evidence from site visits conducted by the DoT that the roads engineering standards and universal design standards are not aligned. All 13 IPTN municipalities have examples of dangerous intersections. However, Cape Town has actively used engineering solutions to make the pedestrian environment safer. An example of this is to build 'bulb-outs' at intersections so that there is more pedestrian space, not less, and the width of the crossing is reduced on the roadside. Traffic can still flow, albeit at a slower speed. This intervention ought to make it extremely easy to lay tactile tiles at the dropped kerb in line with NTR 1 minimum standards.

4.13.9 EE11: More defined compliance process

Municipalities are responsible for compliance with legislation and minimum standards supporting universal access, through the NLTA (RSA, 2009a), the National Building Regulations and Building Standards Act (RSA, 1977, as amended, 2008) and the minimum requirements of the Comprehensive Integrated Transport Plan (CITP) (DoT, 2016b).

Findings

Municipalities do not appear to have mechanisms to ensure compliance with minimum standards. This finding raises very specific concerns around the municipal role of ensuring compliance with national legislation, which is outlined in the next section (4.3.10). The experience of introducing NTR 1 has added to the non-compliance issues related to the application of standards in SANS 10400-S. Consulting firms appointed in municipalities seem to ignore this. The extent of the problem is evident in the myriad of facilities that do not comply. It is of grave concern when construction professionals present work as being universally designed when it does not meet the most basic minimum standards of SANS 10400-S. Particular areas of concern are surfaces, gradients, levels and distances. This leads to a situation in which municipal officials are likely to be unclear whether to approve a design or not. Although the development of other technical requirements is indicated, it seems inadvisable to conclude an entire suite for the complete public transport system, or to introduce regulations with timeframes, without ensuring that any technical requirements that are developed will be implemented.

4.13.10 Investigation of EE11: Compliance processes

Following the presentations by the IPTN municipalities on UDAP development in 2018, it was clear that municipalities may not necessarily acknowledge their role in complying with existing minimum standards affecting universal access in the built environment. During 2018 to 2019, the DoT investigated compliance in the 13 IPTN municipalities (PTND, 2019a).

The circumstances surrounding Dial-a-Ride illustrate the challenges related to compliance. In 2011, the DoT circulated a position paper on Dial-a-Ride, describing the problems of running very necessary, but segregated, services as a substitute for the lack of equal accommodation on mainstream transport. Where segregated systems are in operation (in eThekwini and Cape Town), they are over-subscribed. Due to the complex nature of running this type of service, the demand can never be met, and the cost of trying to do so is substantial (PTND, 2011; City of Cape Town, 2017). If the municipality is not sufficiently able to accommodate people with disabilities on mainstream public transport, running a segregated service could inflate the demand and further exacerbate the problem. In other parts of the country without accessible services, people with disabilities use existing public transport with difficulty, use special services provided by NGOs on a limited basis, or do not go out at all. The risk of a segregated service is that it could be cut at any time, affecting access to education, employment and other life activities.

In June 2019, the DoT wrote and circulated a discussion paper on Dial-a-Ride in response to complaints received from Dial-a-Ride users (PTND, 2018b). The report highlighted that the need for Dial-a-Ride was a response to the failure of both urban and transport planning (RSA, 1977, as amended, 2008). It emphasised the need for universal access transport services at a cost that people could afford, which are not available in other parts of the country. The complaints received by the DoT were surprising. The development of national legislation affecting the built environment in infrastructure and transport over the last ten years should have led to some identifiable alleviation of the problem. The question arose whether the other 11 IPTN municipalities that do not provide Dial-a-Ride services were able to demonstrate any alternative responses to the provision of segregated services. The discussion paper asked for a response within six months from all municipalities and the disability focal points in provinces, but the DoT has not received a response from any of the 13 municipalities.

Following the lack of acknowledgement of the issue, the DoT sent out another communication in March 2019 outlining compliance issues in the built environment that municipalities should have dealt with over the past ten years but had not, as evident from the DoT site visits. Municipalities were asked to respond within two months, but only one response was received. As a national legal obligation and **specific** grant condition of a conditional grant (the Public Transport Network Grant), heads of project management units were asked commit to ensuring that existing national standards were implemented, in line with the grant conditions. Compliance letters were sent out in July 2019, with responses requested by September 2019. Responses were received from the project managers of six of the 13 IPTN municipalities. Only five of the six operating municipalities responded.

The lack of response from project managers, running a targeted programme in the built environment, with additional funding through a conditional grant, for a function that all municipalities are responsible for (whether they receive additional funding or not) is of concern. It is especially concerning given that most of these municipalities indicated that they were placing greater emphasis on compliance with EE8. The National Building Regulations and Building Standards Act (RSA, 1977, as amended, 2008), National Land Transport Act (RSA, 2009a), Municipal Systems Act (RSA, 2000a) and Municipal Structures Act (RSA, 1998b) all locate the expectations of municipal compliance with national minimum standards within the responsibilities of municipalities. The application of Part S of the building regulations to public space is new through this grant, although grant funding has been provided for ten years, which is not an insignificant period. Part S has applied to housing in multiple blocks of occupation, and to all public infrastructure (including stations and bus stops) since 2008 (RSA, 1977, as amended). The significance is that it should have been possible to create cities with a substantial universally accessible footprint, using existing legislation, within the last ten years. This is a long-term outcome of the National Development Plan and the Sustainable Development Goals. Notwithstanding, the discussion paper on Dial-a-Ride emphasises that on-demand services will probably always be needed; however, these do not have to be segregated, as currently provided. Other options and types of service could be explored to support universal design.

4.13.11 EE12: National and international benchmarking

In 2018, the DoT received an international Zero Project Award for the Accessible Public Transport Strategy. The City of Cape Town won a Zero Project Award in 2014 for the MyCiti project (Zero Project, 2014; 2018)

4.14 SUMMARY OF FINDINGS FOR RESEARCH QUESTIONS B & Cii

Evidence from site visits to the 13 IPTN municipalities indicates that in many of them, public transport networks are not becoming safer for pedestrians and public transport users. The roads standards used, which are voluntary, have been chosen to make the roads environment more dangerous for vulnerable pedestrians. This is in direct opposition to the DoT's policy and legislative framework for public transport.

Due to the placement of low-cost housing on the edge of townships, the cost of travel has increased significantly for people on lower incomes and those with disabilities (Hunter & Posel, 2012). None of the new transport systems have yet been able to address this. The Johannesburg to Soweto service is

the best example; however, the urban footprint of Soweto has expanded over the last ten years, and the service already requires further reach. Being able to walk or cycle for transport journeys (even with a disability) is the easiest, cheapest and greenest form of public transport. Where distances are too far to walk (or cycle) all the way, the availability of a safe, affordable, universally accessible and integrated public transport system would, in theory, be an enormous cost saving and help meet sustainability targets.

The process of introducing a universally accessible transport system into a municipality requires a broader focus than infrastructure planning and execution alone. Proper spending of grant funds continues to raise project concerns. The lack of acknowledgement of the cause and effect of minimum standards on the planning and design of public transport systems and the urban form does not currently appear to be receiving enough attention across government.

For users of the new public transport systems, the impacts on their experience of access to participation have been negligible. Implementation has been slow, and progress is patchy. Although both the Public Transport Strategy and the Accessible Public Transport Strategy require that new systems be introduced and existing systems upgraded, municipalities have not yet reported any upgrading initiatives, which could substantially speed up progress. The DoT complaints system has documented the lack of conclusion in a case referred to the South African Human Rights Commission. It required the existing operator of a bus service in Johannesburg to produce a UDAP to demonstrate how its services would become accessible. This lack of conclusion is of concern, because it appears that government legislation on the right of access to a transport service is unenforceable. Some of the problems that municipalities have experienced are that, despite National Treasury's focus on grant expenditure, processes for ensuring both implementation and compliance are inadequate. Municipalities do not have the necessary staff with skills or capacity on universal access. This master's dissertation does not cover the supply chain and other issues that may have resulted in a lack of service delivery, or have inflated the costs of implementation.

CHAPTER 5 CONCLUSIONS AND FURTHER RESEARCH

5.1 INTRODUCTION

This dissertation on *Universally accessible public transport systems: experiences with implementation in the thirteen integrated public transport network municipalities in South Africa* traces the history of disability equality, its relationship to universal design, and the association between disability and (transport) poverty. It outlines the difference between a welfare approach to disability inclusion and a rights-based approach, linking this to the change in approach required in transport and urban planning. It uses public transport as a pattern or example of an element of the urban form through which the government has introduced universal access, and reflects on the success or lack of success of its introduction through the Accessible Public Transport Strategy.

The paradigm of universal design, universal access and reasonable accommodation is embedded in national (transport) legislation, and in the national and international reporting frameworks. Moving South Africa, the baseline assessment of transport services, was completed in 1999. Legislation and policy derived from this assessment cover inclusion in the widest sense, addressing the need for change in transport provision from current public transport services to services that include the transport needs of people with disabilities, life cycle passengers, women, and people accompanying children – in other words, people using public transport for its intended purpose. The research questions asked:

A. Is the Enabling Environment Programme, the foundational pillar of the Accessible Public Transport Strategy, effective for the monitoring and evaluation of the Universal Design Access Plan (UDAP)?
B. Is the UDAP the right tool through which to implement universally accessible transport?
C. To what extent do compliance mechanisms exist to ensure that both (i) the Accessible Public Transport Strategy and (ii) the UDAP are implemented?

In addition to the constitutional requirement for disability equality, universal design, reasonable accommodation and universal access, the international paradigm for urban planning has shifted. Neither transport (or urban) planning tools and standards used nationally have kept up with this change in paradigm. The dissonance between the change in one element (public transport planning), without a corresponding change in other elements of transport and settlement planning is emphasised.

The national and international reports that were reviewed for the present study justify the approach that the DoT has taken in targeting universal access to transport as a measurable outcome of a national grant, as well as the way that this approach was piloted in 13 of the 278 municipalities across South Africa.

However, the pace of change is worryingly slow. For this reason, disability exclusion in transport, in particular, has been examined.

The reports reviewed highlight the severity of the degree of poverty and exclusion that people with disabilities experience, and suggest that the interventions of the DoT and the government as a whole are far too insignificant to make a meaningful impact on alleviating the relationship between disability and poverty in South Africa. Moreover, there seems to be a concerning indication that universal access passengers, in general, find public transport difficult or dangerous to use. Taking the various categories of universal access passengers together, they constitute the majority of the population, yet their concerns have not been addressed.

5.2 CONCLUSIONS ON RESEARCH QUESTIONS A & B

A. Is the Enabling Environment Programme, the foundational pillar of the Accessible Public Transport Strategy, effective for the monitoring and evaluation of the Universal Design Access Plan (UDAP)?

B. Is the UDAP the right tool through which to implement universally accessible transport?

In answering the first two research questions, there seems to be enough evidence to demonstrate that both the Enabling Environment Programme of the Accessible Public Transport Strategy and the UDAP development programme are broadly fit for purpose. However, a lot more work is needed to develop enough evidence to support a detailed justification. Part of the problem in gathering data is the lack of suitable national (or international) indicators to measure the outcomes required in national legislation in relation to equal participation in society, with dignity and in safety. An indicator needs to measure both disability inclusion as a neutral measure, **and** disability exclusion as a negative measure. Universal access measures are required. The relationship between universal access and non-communicable diseases (NCDs) needs further investigation. Given the national statistics on NCDs and road accidents, there is evidence indicating that people without disabilities are negatively affected by an inaccessible environment. A universal access measure, based on universal design and reasonable accommodation, within the context of disability equality, would assist. Evidence of the existence of supporting legislation and policy frameworks, designated funding and standards development alone is not an indicator of a disability-inclusive outcome.

Linking financial expenditure to social outcomes

There is a divide between measuring the financial expenditure and the programme outcomes, reflected in the division between National Treasury and line departments. This means that it is not possible to keep targeted control over implementation. For the implementation of programmes in support of universal access, this is not best practice, or even good practice, as the World Bank Inclusion and Disability Baseline Assessment demonstrates. Both the government and the private sector lack an understanding of the mechanisms in law to implement disability inclusion. This means that both government and the private sector are unable to participate to the extent required in the transformation to an inclusive society. The loss of the monitoring mechanism in the Presidency by its removal to DSD between 2009 and 2019 did not affect the ability to maintain the Disability Rights Programme, or for the DoT to develop a suitable legislative and policy framework, or for the development of minimum standards that support universal access. However, the loss of the monitoring mechanism has affected the ability of the various levels of government over the last ten to 11 years to gain access to relevant capacity building; in turn, this has affected the ability of different spheres of government to ensure compliance. The lack of action by government as the result of non-compliance would appear to have significantly inflated the cost of implementing universal access, through universal design and reasonable accommodation, and a disability equality outcome.

The implementation of this universal access programme has been far too slow relative to the amount of money provided to create change; but it is also arguable that the 20-year timeframe in Moving South Africa is unrealistic, because the legislative framework, policy and implementation mechanisms first had to be introduced. Therefore, in reality, only ten years of implementation have passed. It is not possible to discern whether an additional ten years will be enough, given the compliance problems highlighted in this master's dissertation.

Capacity building on universal access

The UDA has created new, identifiable tools through which to implement change towards a universally accessible transport system, and has been able to introduce processes to monitor and evaluate UDAP development, with the assistance of a dedicated conditional grant. Both the Enabling Environment Programme of the Accessible Public Transport Strategy and the UDAP have made this work possible. The value of this work is supported by national and international literature. However, there is little evidence of progress in implementing changes in practice in municipalities through using these tools, as demonstrated by the complaints received between 2010 and 2020, site audits and inspections, and municipal UDAP development reports received from 2016 to 2020. The evidence shows that there appears to be a lack of ability or will to comply with standards on universal design and universal access.

There also seems to be a lack of ability or will to enforce them or report on their implementation, despite the provision of a dedicated conditional grant. The reasons for this non-compliance and non-delivery are likely to be too complex to examine in this dissertation. However, compliance with standards across government is lacking, and procedures for enforcement are often absent.

The findings of this dissertation highlight the lack of information and awareness on universal design and universal access in both the government and private sectors. This has severe impacts on programmes related to transport and urban planning, as well as city, town and village development. The government can increase awareness by increasing the available information, and the knowledge and implementation of standards in the transport travel chain (whether road-based public transport or other) or any other value chain related to settlement planning (housing, public space, public buildings). Capacity building requires concerted effort. Unless this happens, the likelihood of only superficial compliance, without any real change, remains high.

Understanding stakeholders and barriers to inclusion

Research involving people with disabilities to measure real change in their lives remains an important measure of progress. In the work undertaken by the United Nations after the development of the Millennium Development Goals (MDGs), and leading up to the publication of the Sustainable Development Goals (SDGs), the lack of inclusion of people with disabilities in the MDGs was identified as a notable omission (UNDP, 2014).

In South Africa, government officials have tended to remove themselves from people with disabilities in particular, despite a legislative framework that seeks to connect with them. In the experience of UDA, outsourcing of this function to appointed consultants with no qualifications, knowledge and experience in universal access is no substitute. It can result in non-delivery of programmes designed to achieve social inclusion. Either, the advice given is not supportive of the outcome, no advice, or unhelpful advice is given. Support for the programme by municipal governments, who themselves are capacitated with qualifications on universal access, and have knowledge and experience, is necessary for its success. Furthermore, the inability of the UDA to resolve most of the complaints received seems to show that the feedback loop between all spheres of government, and with people with disabilities and other universal access passengers, which could strengthen and improve the institutional system of service delivery, is currently broken and needs fixing.

It is also not possible to outsource the fundamental national monitoring mechanism, due to the complicated legislative framework within all spheres of government. Including feedback from people

with disabilities and other universal access passengers requires an institutional arrangement in government that is flexible and knowledgeable enough to respond, in line with legislation that supports the Constitution. Both in South Africa and abroad, the failure to recognise disability as a reason for exclusion affects development indexes, indicators, research, finances and budgeting. Unless purposefully included, people with disabilities will be 'left behind', either by not being referenced or through the misinterpretation of data, due to a lack of knowledge of disability inclusion, universal design, reasonable accommodation and universal access. Discriminatory practice, if not checked, has a tendency to grow and to increase the proportion of the excluded population.

The UDAP, as a four-stage implementation tool, is possibly far too complicated given the sporadic nature of (transport) service development. The four stages could perhaps be condensed into just two: planning and operations. The same performance standards and programmes would apply. Furthermore, progress in implementing universally accessible public transport is not possible without corresponding progress in implementing universally accessible urban development. The UDAP should perhaps cover not only the transport system, but also the rest of the built environment. Stages three and four should possibly reflect equal movement in urban planning, so that both transport and urban planning can produce the kind of new, universally accessible South African villages, towns and cities in which everyone can live equally safe and dignified lives. Urban settlements cannot achieve a universally accessible outcome without using the same national minimum standards, which are, in any case, legally applicable.

5.3 CONCLUSIONS ON RESEARCH QUESTION C

C. To what extent do compliance mechanisms exist to ensure that both (i) the Accessible Public Transport Strategy and (ii) the UDAP are implemented?

In answering the third research question, on whether compliance mechanisms are present, this dissertation proposes that there is a fundamental breakdown with compliance mechanisms (addressed in response to research question A and B). While it has been possible to show evidence of this breakdown, the reasons are not possible to explain. This dissertation proposes that one of the ways to make the evidence clearer is to align the spending of government more closely with the outcomes in all grants, not the PTNG alone. The development of a more complex institutional system of government, by the outsourcing of responsibilities for implementation through SOEs, adds a further level of complication to service delivery. SOEs have also lost knowledge and expertise on disability inclusion.

The distant relationships between the national government, SOEs, provincial governments and municipalities creates an unwieldy institutional system of service delivery.

Finally, there are confused and conflicting precepts between old legislation and standards in transport, and other areas of transport and urban planning. These exist in national, provincial and municipal spheres of government, as well as SOEs. The government has introduced new legislation and standards without repealing the old. For unknown reasons, there is an almost universal lack of knowledge of the universal design, reasonable accommodation and universal access elements of PEPUDA, and little understanding of disability equality within it. This lack of knowledge can be, and is, used as justification for the exclusion of people with disabilities and other universal access passengers, both on public transport and as pedestrians, or for not promoting their inclusion. Having to work with these two systems in parallel – the old apartheid system and the new post-apartheid system – seems to cause a sense of paralysis in the municipal government sphere.

PEPUDA is a bold and novel piece of legislation supporting disability inclusion, disability equality and universal access in ways that simultaneously support people without disabilities. It strives for flexible application across all government programmes, including transport. It does not follow the traditional practice of meeting minimum standards, but supports an approach of extending beyond the minimum, dealing with seemingly insurmountable issues through a process of active reconciliation (De Waal et al., 2001), which is not a familiar government approach. Until the government repeals old laws, as required in PEPUDA in 2000 but not completed, outdated practices will continue, with the result of raising the overall cost of removing barriers to access and participation, regardless of any new national interventions that might be proposed in support of the Constitution, and any international treaties that might be signed.

5.4 FUTURE RESEARCH NEEDS

The research goals described in the methodology seek to identify the reasons for the insufficient levels of change that are evident, the barriers to implementation, and the reasons for non-implementation. The UDA has examined the implementation tools (research questions A and B) and assessed the compliance mechanisms (research question C(i) and (ii)). The findings show that the issues raised in research questions A and B are partially met.

International research, national legislation and policy support both the Enabling Environment Programme of the Accessible Public Transport Strategy and the UDAP. However, in answering

research question C(i), they are not able, in their current form, to accurately reflect municipal progress in implementing the Accessible Public Transport Strategy. It is not clear whether the lack of ability to report on progress is due to problems with the tools, or the lack of submission of reports from municipalities. If the UDA does not receive the evidence, there is no mechanism to force municipalities to submit it. When information is requested on matters of concern, an insufficient number of responses are received. The UDAP is a required output of a conditional grant, yet there is insufficient evidence of its development at municipal level, despite the amounts of conditional grant funding received.

Research question C(ii) asks whether mechanisms exist for municipal compliance. The findings, evidence from access audits, stakeholder reports and UDAPs received by the UDA, as well as the national complaints system, show that there are hardly any municipal compliance mechanisms. The universal access portion of the PTNG during the ten years of implementation has made almost no impact in relation to the timeframes published in Moving South Africa and the Public Transport Strategy. Further research is needed to establish the causes.

In determining the rationale for the inability to meet the universal access goals of the Accessible Public Transport Strategy, the following identified areas of research will assist in understanding the reasons.

System design and assessment

There is an identifiable difference of approach between legislation that uses the welfare model described in the Freedom Charter, and the rights-based approach described in the South African Constitution. These approaches translate into differences in policy documents, practice and compliance. Because different parts of government interpret laws differently, the relationship between corporate social responsibility programmes and service delivery in government requires further exploration. Compliance processes in planning, design, construction and approval bring the private and public sectors together. Noting the difference between a welfare and rights-based approach to disability equality, how should this process be managed to achieve the outcomes required in national plans and international commitments, such as the White Paper on the Rights of Persons with Disabilities, the National Development Plan, the United Nations Convention on the Rights of Persons with Disabilities and the Sustainable Development Goals?

The two areas above may not seem remotely connected to planning and designing a public transport system, or more broadly to the urban form. However, unconsciously, the approaches that built environment professionals, whether in the public or private sector, bring to these projects, is important. A proper system of appraising plans for universal design, before planning is finalised and construction

begins, saves both time and money in the long run. It is an important indication of whether both the planning and the design will stand up to scrutiny during a universal access audit, and leads to the potential cost savings that universal design can bring, by capturing mistakes that would have been made during the detailed design and construction stages if the plan appraisal had not been carried out.

Although this takes additional time, given that the projects are now stalling whilst grant funding is still unallocated, a pilot of this nature could be trialled in municipalities. The lack of use of this process demonstrates the need for municipalities to appoint and learn from access consultants, and for those interested in becoming an access consultant to find suitable training that is aligned with the post-apartheid South African legislative framework.

Grant spending

Further work is needed on the relationship between grant underspending and the ability of the government to cancel projects that might have led to transformation if they had been successfully concluded. If grant spending is removed for reasons that might be entirely justified, there is also the risk of removing a mechanism to create the change required to move from the old apartheid institutional system to something new. This is particularly important for spatial transformation, where the results of the planning process take some time to materialise in both transport and urban planning.

The reasons that municipalities are unable to report on UDAP development may be both serious and justifiable. It is important to properly understand the problems that municipal staff face, especially in crucially important areas such as spatial transformation. There is a need for political support for the projects over a longer timeframe than the normal government three-year planning cycle, because planning decisions take in the region of 20 years to come to fruition. There is an urgent need to examine the broader effect of non-implementation in other areas of government apart from transport. Some of the research carried out for the Literature Review in Chapter 2 provides evidence of lack of provision of assistive devices and a divided school system. It is not clear what people with disabilities are living on. Are their health and rehabilitation needs actually met? Learners with disabilities either do not spend enough time at school, or receive a sub-standard education. An ever-increasing number of learners with disabilities are on learnerships, but not in employment.

Finally, the Public Transport Strategy identifies six rural districts for implementation of IPTNs, but there has been no implementation of rural universally accessible IPTNs in 13 years. Rural accessibility has been clearly identified as a problem in all the relevant research studies. Nationally, due to the high

dependency on social grants, there are a large number of people with disabilities of all ages as well as elderly people in transport poverty, necessitating a separate study to ensure service delivery.

Standards and scope of application

An examination of standards, and compliance with such standards, in **both** planning and construction is urgently required. If minimum standards that were published by the government ten years ago have not been implemented, what is the cost to society of this non-implementation? How does this further disable people who are already in extreme poverty, both with and without disabilities? How will it affect elderly people in the future? Further investigation is required of the role of two of the SOEs that fall under the Department of Trade, Industry and Competition, namely the South African Bureau of Standards (SABS) and the National Regulator for Compulsory Specifications (NRCS), as well as the relationship between these two SOEs and the DoT in the development of roads standards and vehicle accessibility, in particular. There is concern over the DoT's relationship with its own SOEs, and the standards used, recognised and promoted.

From the research conducted on problems with UDAP development and implementation, there appears to be a 'disconnect' between urban and transport planning and the implementation of national standards. In Johannesburg, for example, the BRT stations are not creating new universally accessible urban development in the surrounding precincts for reasons that are unclear. Urban development has taken place elsewhere in the Gauteng region than between city centres and townships, where the new transport systems were planned. Infrastructure standards supporting universal access in those developments are still not being implemented, either in planning or construction, again for reasons that are unclear.

Development of regulation, as the NLTA requires, is needed, especially in the areas of the travel chain covering information and communication, as well as broader operational standards, against the performance standards provided in the Public Transport Strategy, the Accessible Public Transport Strategy and the UDAP development tools. However, because of the inexplicable background of non-compliance with existing building regulations that were published by the government in 2008, there is a need to establish why these regulations were not enforced. Otherwise, it is highly unlikely that the transport regulations governing universal access will be enforced either. The transition towards a universally accessible, integrated public transport system requires the use of existing operations and services as well as the introduction of new services. Recent court cases on the lack of accommodation of guide dogs, for example, in accessing services raise some important questions on the readiness of transport operators to accommodate them. Other groups of people with disabilities, particularly people in wheelchairs, have highlighted the difficulty of travelling in existing minibus taxis, the

accommodation of assistive devices and the respectful provision of reasonable accommodation. This would be a very interesting and helpful area of research.

Institutional development

An exploration of the role of built environment professions, from planning (both transport and urban) to construction, their knowledge of universal access and the ability to apply it, would greatly assist the implementation of strategies such as the Accessible Public Transport Strategy. Although legally both engineers and architects can claim suitable skills in the area of universal design, the evidence that the DoT has examined on site visits suggests that substantiation of their skills in this area is highly necessary. There seems to be a rationale for the emergence of a separate profession of access professionals (outside of government) and access officers (within government), as the 2008 building regulations identified, especially given South Africa's broader international commitments with respect to the UNCRPD and the SDGs. There is a need to establish stages in programme development or infrastructure completion, at which progress is properly checked by an access consultant or auditor separate to the implementer, with sufficient knowledge of the desired national legal outcome.

The Council for the Built Environment (CBE), is responsible for professional practice oversight of built environment professionals. CBE has established a transformation programme, but is only in the initial stages of implementing it. In the meantime, planning and development continue to take place that do not in the least support minimum standards, and every mistake carries a cost. More research is needed on the difference and effect of studying universal design and access as a qualification in its own right, compared with studying these aspects as part of an existing qualification. PEPUDA indicates the need for a separate qualification and a deeper understanding of disability equality, which is now reflected in the amended National Building Regulations and Building Standards of 2008 and the NLTA enacted in 2009. Transport and urban planning fall outside the scope of the Council for the Built Environment. However, it is noticeable that publicly available documents in the engineering field indicate that the approach taught on road safety is to close off side roads and to make fewer intersections, rather than more. This creates longer walking distances for pedestrians. Intersections where pedestrians should be able to cross the road safely do not support SANS 10400-S minimum standards (SABS, 2011). The engineering focus is largely on the safety of vehicles, not pedestrians, as reflected in documents reviews (COTO, 2012; RTMC, 2012; Burger, 2013).

There is an important need for different departments and different levels of government to retain contact with vulnerable groups who are not receiving services. The feasibility and capability of an institutional system of contact with government should be enhanced through digital technology. This is an area of

smart city development and institutional support that could be usefully investigated (Gibberd, 2018). A comparison between the approaches that the DoT has taken and those taken by other government departments, which all have similar mandates to bring about disability equality, would be an extremely useful study for all levels of government. It would be helpful to establish which of the problems that the DoT has experienced in implementation are similar across government as a whole.

Stakeholder participation and consultation

In the ten years that the DoT has taken complaints through the UDA programme (RSA, 2015b), some have been resolved successfully, but most have not. How can the DoT speed up the process of dealing with and resolving the complaints it receives? If these involve other organs of state, what mechanisms can be put in place to ensure a more streamlined and efficient approach to resolving them? The case studies in the Foreword illustrate the dangers of not finding a faster system of implementation, as well as the dangers of non-compliance, particularly in planning and the built environment, and the effect on accessing services.

The responsibility of all organs of state to take and record complaints from people who are incapacitated by current service delivery raises concerns over the outcome of these complaints (RSA, 2009a). In the research that the DoT has carried out in trying to resolve these complaints, the relationship with the South African Human Rights Commission (SAHRC) has been highlighted when operators refuse to take a reconciliatory approach. Although reconciliation is an established national mechanism, at what point should other action be taken and who should take this action; for example, where there are issues of health and safety, refusal to provide a service, or withdrawal of a service? Will the result of whatever intervention is deemed necessary assist the government in meeting its socio-economic objectives?

REFERENCES

Africa Check, 2020. Factsheets. [Online] Available from https://africacheck.org/how-to-fact-check/factsheets-and-guides/all-factsheets/ [Accessed 1 January 2020].

African Child Policy Forum (ACPF), 2014. *Access denied: voices of persons with disabilities from Africa*. [Online] Available from https://www.africanchildforum.org/index.php/en/component/com_ sobipro/Itemid,0/pid,2/sid,140/ [Accessed 11 May 2019]

African Union, 2017. *Protocol to the African Charter on Human and Peoples' Rights on the Rights of Persons with Disabilities in Africa*. African Union. [Online] Available from: https://au.int/en/ treaties/protocol-african-charter-human-and-peoples-rights-rights-persons-disabilities-africa [Accessed 11 May 2019]

Allport, G.W., Clark, K. & Pettigrew, T., 1954. *The nature of prejudice*. Ontario. Addison-Wesley. [Online] Available from https://faculty.washington.edu/caporaso/ courses /203/readings/allport_Nature_of_prejudice.pdf [Accessed 11 May 2019]

Anciaes, P.R., Jones, P. & Mindell, J.S., 2017. Quantifying the barrier effect of main roads on pedestrian preferences and behavior. *Transportation Research Board,* 96th Annual Meeting, 1–16. [Online] Available from: https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q= QUANTIFYING+THE+BARRIER+EFFECT+OF+MAIN+ROADS+ON+PEDESTRIAN+PREFERENCES+AND+BEHAVIOR&btnG= [Accessed 26 June 2020]

Anciaes, P., Jones, P. & Mindell, J., 2014. *The value of the barrier effect of roads and railways: a literature review*. London: University College London. [Online] Available from: https://discovery.ucl.ac. uk/id/eprint/1461386/1/Mindell_ucl_streetmobility_paper03.pdf [Accessed 26 June 2020]

Ariefdien, R., 2016. Learnerships: enabling inclusion for persons with disabilities into employment *Monitoring Disability Inclusion and Social Change*, 71–80. Cape Town. University of Cape Town. [Online] Available from http://www.dhrs.uct.ac.za/sites/default/files/image_tool/images/147 /Disability%20Catalyst%20Africa%205%202016%20Monitoring%20Disability%20Inclusion%20and %20Social%20Change.pdf#page=19 [Accessed 11 May 2019]

Atkinson, A.B. & Marlier, E., 2010. *Analyzing and measuring social inclusion in a global context*. UN DESA. [Online] Available from https://www.un.org/esa/socdev/publications/ measuring-social-inclusion.pdf [Accessed 11 May 2019]

Australian Human Rights Commission, 1997. *Ian Cooper and Others v Holiday Coast Cinema Centres (PTY) Ltd*. [Online] Available from https: //www.humanrights.gov.au/our-work/disability-rights/ian-cooper-and-others-v-holiday-coast-cinema-centres-pty-ltd [Accessed 11 May 2019]

Bamford, L.J., McKerrow, N.H., Barron, P. & Aung, Y., 2018. Child mortality in South Africa: fewer deaths, but better data are needed. *South African Medical Journal*, 108(3): 25–32. [Online] Available from http://www.samj.org.za/index.php/samj/article/view/12238 [Accessed 11 May 2019]

Banks, L.M. & Polack, S., 2014. *The economic costs of exclusion and gains of inclusion of people with disabilities*. London. International Centre for Evidence in Disability. [Online] Available from https://www.cbm.org/fileadmin/user_upload/Publications/Costs-of-Exclusion-and-Gains-of-Inclusion-Report.pdf [Accessed 11 May 2019]

Barnes, C. The social model of disability: valuable or irrelevant? in Watson, N., Roulstone, A. & Thomas, C., 2012. *The Routledge handbook of disability studies*, 12–29. London. Routledge. [Online]

Available from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.459.1606& rep=rep1&type=pdf [Accessed 11 May 2019]

Batavia, A.I. & Beaulaurier, R.L., 2001. The financial vulnerability of people with disabilities: Assessing poverty risks. *Journal of Sociology and Social Welfare*, 28: 139. [Online] Available from https://www.researchgate.net/publication/279690595_The_Financial_Vulnerability_of_People_with_ Disabilities_Assessing_Poverty_Risks [Accessed 11 May 2019]

Beg, F., Bickford, G., Denoon-Stevens, S., Harber, J., Jitsing, A., Moosajee, R. & Schmidt, D., 2014. *How to build transit-oriented cities. Exploring possibilities*. Braamfontein. South African Cities Network.

Benner, C. & Pastor, M., 2016. *Inclusive economy indicators. Framework and indicator recommendations.* New York. Rockefeller Foundation. [Online] Available from https://www.rockefellerfoundation.org/report/inclusive-economies-indicators-full-report/ [Accessed 11 May 2019]

Berghs, M., 2017. Practices and discourses of Ubuntu: implications for an African model of disability? *African Journal of Disability,* 6: 1–8. [Online] Available from https://ajod.org/index.php/ajod/article/view/292 [Accessed 4 January 2019]

Brendon, P., 2007. *The decline and fall of the British Empire, 1781–1997*. New York. Vintage.

Bright, K. (ed.), 2005. *Disability: making buildings accessible. Special report.* 3rd ed. London. Workplace Law Publishing & Cambridge. Burlington Press.

Bright, K. (ed.), 2003. *Disability: making buildings accessible: special report.* 2nd ed. London. Workplace Law Network & Cambridge. Burlington Press.

Bright, K. & Di Giulio, R., 2002. *Inclusive buildings. Designing and managing an accessible environment*. London. Blackwell Science.

Bringa, O.J., Making universal design work in zoning and regional planning: a Scandinavian approach in Nasar, J.L. & Evans-Cowley, J., 2007. *Universal design and visitability: from accessibility to zoning*. Ohio State University, 97–115. [Online] Available from https://kb.osu.edu/bitstream/handle/1811/24833/?sequence=2 [Accessed 11 May 2019]

British Standards, 2018a. *Design of an accessible and inclusive built environment. Part 1: External environment. Code of practice.* BS 8300–1:2018. Hemel Hempstead. British Standards.

British Standards, 2018b. *Design of an accessible and inclusive built environment. Part 2: Buildings. Code of practice.* BS 8300–2:2018. Hemel Hempstead. British Standards.

British Standards, 2009–2010. *Design of buildings and their approaches to meet the needs of disabled people. Code of Practice*. BS 8300:2009+A1:2010. Hemel Hempstead. British Standards.

British Standards, 2008. *Code of practice for fire safety in the design, management and use of buildings*. BS 9999. Hemel Hempstead. British Standards.

British Standards, 2001. *Design of buildings and their approaches to meet the needs of disabled people. Code of Practice*. BS 8300:2001. Hemel Hempstead. British Standards.

British Standards, 1999. *Code of practice for means of escape for disabled people*. BS5588–8. Hemel Hempstead. British Standards.

Brown, J.A.C., 1961. *Freud and the post-Freudians*. London. Penguin Press.

Burger, E., 2013. *Urban planning approach for improvement of road safety in suburban arterial roads of Bloemfontein city, South Africa*. Unpublished doctoral dissertation. Bloemfontein. Central University of Technology. [Online] Available from http://ir.cut.ac.za/handle/11462/182 [Accessed 31 January 2020]

Burgess, R.G., 1993. *In the field: an introduction to field research*. Oxford. Routledge.

Cameron, W., 2015. *Transport planning frameworks. Public Transport Network Grant. Alignment of grants.* PowerPoint presentation. (Internal document). Pretoria. Department of Transport.

Castell, L., 2008. Adapting building design to access by individuals with intellectual disability. *Construction Economics and Building*, 8(1): 11–22. [Online] Available from https://www.researchgate.net/publication/287513191_Adapting_Building_Design_to_Access_by_Individuals_with_Intellectual_Disability [Accessed 12 December 2019]

Centre for Accessible Environments, 1993. *Designing for accessibility*. London. Centre for Accessible Environments.

Chacón, K., 2019. *General analysis of universal design in public transport for the Republic of Ecuador*. Ecuador. Technical Secretariat for the Inclusive Management on Disabilities.

City of Cape Town, 2017. *Provision of a public transport Dial-a-Ride service on behalf of the City of Cape Town*. (Internal document). Western Cape Province. City of Cape Town.

Coleman, R. & Myerson, J., 2005. *Include*. London. Helen Hamlyn Research Centre, Royal College of Art.

Committee of Transport Officials (COTO), 2012. *South African road classification and access management manual,* TRH 26. Version 1.0, August 2012. Pretoria. Department of Transport.

Congress of the People, 1955. *The Freedom Charter*. In South African History on Line. [Online] Available from https://www.sahistory.org.za/article/congress-people-and-freedom-charter [Accessed 10 December 2018]

Das, M., 2013. *Inclusion matters: the foundation for shared prosperity. Overview*. Washington, DC. World Bank. [Online] Available from https://openknowledge.worldbank.org/handle/10986/16195 [Accessed 11 May 2019]

Das, M. & Espinoza, S.A, 2019. *Inclusion matters in Africa*. Advanced ed. World Bank. [Online] Available from https://openknowledge.worldbank.org/bitstream/handle/10986/32528/IM-Africa.pdf?sequence=1 [Accessed 11 May 2019]

Datta, D. & Arnsten, A.F., 2019. Loss of prefrontal cortical higher cognition with uncontrollable stress. Molecular mechanisms, changes with age, and relevance to treatment. *Brain Sciences*, 9(5): 113. [Online] Available from https://www.ncbi.nlm.nih.gov/pubmed/31108855 [Accessed 12 December 2019]

Davies, G., Case study 7: Inclusive public transportation (South Africa) in UN DESA, 2016. *Good practices of accessible urban development*, 32–35. UN Department for Economic and Social Affairs. [Online] Available from https://www.un.org/disabilities/documents/desa/good_practices_in_accessible_urban_development_october2016.pdf [Accessed 19 February 2021]

Davies, G., 2013a. *Universal Design Access Plan*. Version 4. (Internal document). Western Cape Province. City of Cape Town.

Davies, G., 2013b. *Universal Design Access Plan*. (Internal document). Eastern Cape Province. Nelson Mandela Bay Municipality.

Davies, G., 2013c. *Universal Design Access Plan*. (Internal document). North West Province. Rustenburg Municipality.

Davies, G., 2013d. *Universal Design Access Plan*. (Internal document). Limpopo Province. Polokwane Municipality.

Davies, G., 2013e. *Universal Design Access Plan*. (Internal document). Gauteng Province. City of Tshwane.

Davies, G., Venter, L. & Malan, A., 2016. *Participation report. Special needs passengers*. Limpopo Province. Polokwane Municipality.

De Waal, J., Currie, I. & Erasmus, G., 2001. *The Bill of Rights handbook*. 4th ed. Cape Town. Juta.

Deglon, U., 2019. *Economic transformation and job creation. Inclusive of persons with disabilities as owners of economy.* PowerPoint presentation. Presidential Working Group on Disability, 23–25 July 2019. National Disability Rights Machinery. (Internal document). Pretoria. The Presidency.

Department of Basic Education, 2015. *Report on the implementation of Education White Paper 6 on inclusive education. An overview for the period 2013–2015.* Pretoria. Department of Basic Education.

Department of Basic Education, 2014. *Policy on screening, identification, assessment and support (SIAS).* Pretoria. Department of Basic Education.

Department of Basic Education, 2011. *National Curriculum Statement (NCS). Curriculum Assessment and Policy Statement (CAPS)*. Pretoria. Department of Basic Education.

Department of Basic Education, 2001. *Education White Paper 6. Special needs education. Building an inclusive education and training system*. Pretoria. Department of Education.

Department of Cooperative Governance and Traditional Affairs, 2016. Integrated urban development framework. Implementation plan. [Online] Available from http://www.cogta.gov.za/cgta_2016/ wp-content/uploads/2016/05/IUDF-IMPLEMENTATION-PLAN-2016_WEB.pdf [Accessed 11 May 2019]

Department of Cooperative Governance and Traditional Affairs, 2009. Disability framework for local government. Baseline assessment, 2009–2014. Department of Provincial and Local Government, now the Department of Cooperative Governance and Traditional Affairs, COGTA. [Online] Available from https://www.un.org/development/desa/disabilities/wp-content/uploads/sites/15/2019/10/South-Africa_Disability-Framework-for-Local-Government-2009-2014.pdf [Accessed 11 May 2019]

Department of Health, 2016. *Strategy for the Prevention and Control Of Obesity 2015–2020*. Pretoria. Department of Health.

Department of Health, 2006. *Framework and strategy for disability and rehabilitation services in South Africa*. Pretoria. Department of Health.

Department of Higher Education and Training, 2016. *Statistics on post-school education and training in South Africa*. Pretoria. Department of Higher Education.

Department of Labour, 2004. *Technical assistance guidelines on the employment of people with disabilities.* Pretoria. Department of Labour.

Department of Social Development, 2015. *Experiences of Persons with Disabilities in Learnerships, Higher Education Institutions and Public Entities. A pilot study*. Department of Social Development. [Online] Available from http://www.women.gov.za/images/Experiences-of-Persons-with-Disabilities-in-Learnerships-Higher-Education-Institutions-and-Public-Entities-A-Pilot-Study.pdf [Accessed 11 May 2019]

Department of Social Development, 2014. *Universal Access Standard Tool*. Department of Women, Children and People with Disabilities. Pretoria. South Africa.

Department of Social Development, 2012. *Children with disabilities in South Africa. A situation analysis 2001–2011*. UNICEF. Department of Women, Children and People with Disabilities. Pretoria. South Africa. [Online] Available from: https://www.unicef.org/southafrica/reports/ children--disabilities-south-africa [Accessed 11 May 2019]

Department of Transport, 2020. *Universal design and universal access in public transport Department of Transport, South Africa. Innovative solution: universally designed small bus targeting remote communities and scholar transport*. 21st Annual Roundtable on Inclusive Transportation in Developing Countries, 16 January 2020. Access Exchange International (USA) & ICSA (Canada). Hosted by the American Public Transportation Association. PowerPoint presentation. Pretoria. Department of Transport.

Department of Transport, 2018. *Publication of draft Roads Policy for South Africa for public comment*. (Proclamation No. 203, 2018). *Government Gazette*: 41488_12–7. (Regulation Gazette No. 41488). [Online] Available from https://www.gov.za/sites/default/files/gcis_document/201803/ 41488 gon203.pdf [Accessed 25 January 2020]

Department of Transport, 2016a. *Guidelines and requirements: Public Transport Network Grant 2016/2017*. For grant management in 2016/17 and for business plan preparation underpinning budget proposals for MTEF 2017/18 to 2019/20. Pretoria. Department of Transport.

Department of Transport, 2016b. *Minimum requirements for the preparation of integrated transport plans*. (Proclamation No. 881, 2016). Government Gazette: 40174_29–7. (Regulation Gazette No. 40174). Pretoria. Department of Transport.

Department of Transport, 2016c. *National Technical Requirement 1. Pedestrian crossings*. Pretoria. Department of Transport.

Department of Transport, 2014. *Non-motorised transport facility guidelines*. Pretoria. Department of Transport.

Department of Transport, 2013a. *Terms of reference for the appointment of an access consultant.* Version D. UDA. Pretoria. Department of Transport.

Department of Transport, 2013b. *Universal Design Access Plan (UDAP).* Generic. UDA. Pretoria. Department of Transport.

Department of Transport, 2010. *Programme of Action on universally accessible transport*. UDA. (Internal document). Pretoria. Department of Transport.

Department of Transport, 2009. *Implementation strategy to guide the provision of accessible public transport systems in South Africa. (Accessible Public Transport Strategy).* Draft. Pretoria. Department of Transport.

Department of Transport, 2003. *Key results of the National Household Travel Survey. The first South African National Household Travel* Survey, 2003. Pretoria. Department of Transport.

Department of Transport, 1999. *Moving South Africa*. Pretoria. Department of Transport.

Deepa, N., 2002. Empowerment and Poverty Reduction: A Sourcebook. Washington, DC: World Bank. [Online] Available from https://openknowledge.worldbank.org/handle/10986/15239 [Accessed 19 February 2021]

Duarte, R. & Cohen, R., Research and teaching of accessibility and universal design in Brazil. Hindrances and challenges in a developing country in Nasar, J. & Evans-Cowley, J., 2007. *Universal design and visitability*, 155–147. Washington DC: National Endowment for the Arts. [Online] Available from https://kb.osu.edu/bitstream/handle/1811/24833/UniversalDesign &Visitability2007.pdf;jsessionid=D4F180A17B03EB15DCB392381CB27A4A?sequence=2 [Accessed 11 May 2019]

Dube, A.K., 2014. *Disability-disaggregated National Development Plan 2030.* Addis Ababa: Secretariat of the African Decade of Persons Disabilities & Pretoria: Department of Women, Youth and People with Disabilities.

Dube, A.K., 2005. *The role and effectiveness of disability legislation in South Africa*. UK; Disability Knowledge and Research Programme. [Online] Available from https://assets.publishing. service.gov.uk/media/57a08c5ce5274a27b2001155/PolicyProject_legislation_sa.pdf [Accessed 11 May 2019]

Ecuador Technical Secretariat, 2015. *Accessibility and disability inclusion in urban development: A perspective from Ecuador and Latin America*. PowerPoint presentation. Ecuador: Technical Secretariat for the Inclusive Management on Disabilities, Government of Ecuador.

European Union, 2009. *Bus Standards*. E/ECE/324/Rev.2/Add.106/Rev.3−E/ECE/TRANS/505/ Rev.2/ Add.106/Rev.3, adopted as South African Standard SANS 20107: 2009. Third edition. South African Bureau of Standards. Pretoria. South Africa.

Evans, S., 2004. *Forgotten crimes: the holocaust and people with Disabilities*. Chicago: Ivan R. Dee.

Fasciglione, M., 2015. Corporate social responsibility and the right to employment of persons with disabilities in Fina, V. & Cera, R. (eds). *Protecting the rights of people with autism in the fields of education and employment. International, European and national perspectives,* 171–193. Cham, Switzerland. Springer. [Online] Available from http://library.oapen.org/bitstream/ id/4f44880d-f65a-4f2e-a688 0553e9409d31/1002002.pdf#page=177. [Accessed 28 January 2019]

Finkelstein, V., 2008. *Forward to square one.* Prepared as a contribution for a book concerned with the history of Jews in Natal, South Africa during the 'apartheid' period. [Online] Available from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/finkelstein-Forward-to-Square-One.pdf [Accessed 28 January 2019]

Finkelstein, V., 2005. *Reflections on the social model of disability: the South African connection.* [Online] Available from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/finkelstein-Reflections-on-the-Social-Model-of-Disability.pdf [Accessed 28 January 2018]

Finkelstein, V., 2001. *A personal journey into disability politics*. [Online] Available from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/finkelstein-presentn.pdf [Accessed 28 January 2018]

Finkelstein, V. 1993. The commonality of disability, in Swain, J., Finkelstein, V., French, S. & Oliver, M. (eds). 1994. *Disabling barriers – enabling environments*, 9–16. California. Sage.

Finkelstein, V., 1975. To deny or not to deny disability in Loynes, I., *Struggling to understand the social model of disability*, Spectrum Centre for Independent Living. 20 August 2017. [Online] Available from https://spectrumcil.wordpress.com/2017/08/20/struggling-to-understand-the-social-model-this-essay-changed-my-understanding-and-my-life/ [Accessed 28 January 2018]

Fish-Hodgson, T. & Khumalo, S., 2016. *Too many children left behind. Exclusion in the South African inclusive education system with a focus on the Umkhanyakude district, KwaZulu-Natal*. Human Rights Watch. [Online] Available from http://section27.org.za/wp-content/uploads/2016/08/Umkhanyakude-Report-Final-08082016-1.pdf [Accessed 5 May 2019]

Fremstad, S., 2008. *Measuring poverty and economic inclusion: the current poverty measure, the NAS alternative, and the case for a truly new approach* (No. 2008–36). Center for Economic and Policy Research (CEPR). [Online] Available from https://www.researchgate.net/publication/ 23648976_Measuring_Poverty_and_Economic_Inclusion_The_Current_Poverty_Measure_the_NAS_ Alternative_and_the_Case_for_a_Truly_New_Approach [Accessed 28 January 2019]

Frieslaar, A., 2015. *Low floor high floor integration*. HHO Africa. Presentation for Southern African Transport Conference 2015. [Online] Available from https://repository.up.ac.za/ handle/2263/57560 [Accessed 28 January 2019]

Frye, A., 1996. *Bus travel: a vital link in the chain of accessible transport* in Imeche Conference Transactions: Bus and Coach '96, 16–17 October 1996 (No. C513/011/96). [Online] Available from https://www.semanticscholar.org/paper/bus-travel-a-vital-link-in-the-chain-of-accessible-Frye/ea9c8b48e3341c1f9f205c7b876141f50fdfc4c9 [Accessed 28 January 2019]

Frye, A., 2013. *Survey of local transport needs and priorities, analysis of results*. (Internal document). GAATES. [Online] Available from http://gaates.org/ [Accessed 28 January 2019]

Gauge, 2003a. *Implementing the integrated national disability strategy,* vol. 1. Disability Awareness. Pretoria. Office on the Status of Disabled Persons.

Gauge, 2003b. *Implementing the integrated national disability strategy,* vol. 1, 2 and 3. Pretoria. Office on the Status of Disabled Persons.

Gibberd, A., 2018. *Moving towards universally accessible spatial and digital transformation in South African cities*. Out of the Box Conference. Pretoria. CSIR.

Gibberd, A., 2006. *Legislation and policy relating to people with disabilities in terms of the design and management of housing and the external built environment in South Africa*. Pretoria. CSIR.

Gibberd, A., in Watermeyer, B., Coulson, J., Napier, M. & Matsebe, G., Disability and human spaces, Section VI: 324–350 in Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. & Schneider, M. (eds), 2006. *Disability and social change: a South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

Gibberd, A., Langa M. & Nstoane, G., 2012. *Position paper on statistical information on passengers with special categories of need, with reference to the National Land Transport Act 2009.* (Draft). Pretoria. Department of Transport. Pretoria. South Africa.

Goldsmith, S., 1984. *Designing for the disabled*. London. RIBA Publications.

GoMetro, 2018. *Household travel survey*. Draft. (Internal document). Free State Province. Mangaung Municipality.

Government of Norway, 2008. *Relating to a prohibition against discrimination on the basis of disability.* Anti-Discrimination and Accessibility Act, No. 42 of 2008. [Online] Available from https://lovdata.no/dokument/NLE/lov/2017-06-16-51 [Accessed 2 February 2019]

Grace, E., 1995. What's the use of a building that I can't use? A report from the AA Post-Graduate Course in Environmental Access in *AA files, Annuals of the Architectural Association School of Architecture*, 30: 10–16.

Groundup, 2018. *Good Samaritan helps Eastern Cape mom with wheelchair for her son.* News24. [Online] Available from https://www.news24.com/news24/southafrica/news/good-samaritan-helps-eastern-cape-mom-with-wheelchair-for-her-son-20181001 [Accessed 1 November 2018]

Hanass-Hancock, J. & Deghaye, N., 2015. *Elements of the financial and economic costs of disability to households in South Africa. Results from a pilot study.* Department of Social Development. Pretoria. South Africa.

Hellzen, O., Haugenes, M. & Østby, M., 2018. 'It's my home and your work': the views of a filmed vignette describing a challenging everyday situation from the perspective of people with intellectual disabilities. *International Journal of Qualitative Studies on Health and Well-Being*, 13(1): 1468198. [Online] Available from https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC5944369/ [Accessed 2 February 2019]

Heymann, J., Sprague, A. & Raub, A., 2020. *Advancing equality: how constitutional rights can make a difference worldwide*. University of California Press. [Online] Available from: https://library.oapen.org/bitstream/handle/20.500.12657/22984/advancing-equality-how-

constitutional-rights-can-make-a-difference-worldwide.pdf?sequence=1 [Accessed 28 December 2020].

Holmes-Siedle, J., 1996. *Barrier-free design, a manual for building designers and managers*. Oxford. Butterworth Architecture.

Horn, A., 2010. Telling stories: a history of growth management in the Gauteng province (South Africa). *European Spatial Research and Policy*, 17(2): 41–54. [Online] Available from http://esrap.geo.uni.lodz.pl/ [Accessed 2 February 2019]

Howell, C., Chalken, S. & Alberts, T., The history of the Disability Rights Movement in Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. & Schneider, M. (eds), 2006. *Disability and social change: a South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

Human Engineering and Guide Dogs for the Blind, 2008. *Assessment of accessibility standards for disabled people in land-based public transport vehicles.* Reference HEL/DFT/061496/RT02. Issue 2. London: Department for Transport.

Human Rights Watch, 2019. South Africa: *Children with disabilities short-changed*. Human Rights Watch. Human Rights Watch, New York, USA. [Online] Available from https://www.hrw.org/news/2019/05/24/south-africa-children-disabilities-shortchanged. May 24, 2019 2:00AM EDT [Accessed 24 May 2019]

Human Rights Watch, 2018. "*They Stay Until They Die" A Lifetime of Isolation and Neglect in Institutions for People with Disabilities in Brazil.* Human Rights Watch, New York, USA. [Online] Available from https://www.hrw.org/report/2018/05/23/they-stay-until-they-die/lifetime-isolation-and-neglect-institutions-people [Accessed 18/2/2021].

Human Rights Watch, 2015. *Complicit in exclusion. South Africa's failure to guarantee and inclusive education for children with disabilities*. Human Rights Watch, New York, USA. [Online] Available from https://www.hrw.org/report/2015/08/18/complicit-exclusion/south-africas-failure-guarantee-inclusive-education-children [Accessed 2 February 2019]

Hunter, M. & Posel, D., 2012. Here to work: the socioeconomic characteristics of informal dwellers in post-apartheid South Africa. *Environment and Urbanization*, *24*(1), pp.285–304. Sage. [Online] Available from: https://journals.sagepub.com/doi/pdf/10.1177/0956247811433537 [Accessed 26/6/2020]

Hurst, R., 2005. Disabled Peoples' International: Europe and the social model of disability. *The social model of disability: Europe and the majority of the world*. Disability Press. Leeds, UK. [Online] Available from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/Barnes-EMW-Chapter-5.pdf [Accessed 2 February 2019]

Imrie, R., 1996. *Disability and the city*. London. Paul Chapman Publishing.

International Organization for Standardization (ISO), 2011. *Accessibility and usability of the built environment*. ISO/TC 59/SC 16. First edition. ISO. Final Draft. International Standard ISO/FDIS) 21542. [Online] Available from https://www.iso.org/standard/50498.html?browse=tc.pdf [Accessed 5 May 2019]

International Transport Forum (ITF), 2018. *Road safety annual report 2017*. OECD Publishing, Paris. [Online] Available from https://www.oecd-ilibrary.org/transport/road-safety-annual-report-2017_irtad-2017-en [Accessed 12 December 2019]

Jagoe, K., in Howell, C., Chalken, S. & Alberts, T., The history of the Disability Rights Movement, In Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. & Schneider, M. (eds), 2006. *Disability and Social Change: a South African Agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

John, L., 2012. *Secondary cities in South Africa: the start of a conversation*. South African Cities Network. [Online] Available from http://sacitiesnetwork.co.za/wp-content/uploads/2014/07/secondary_cities_in_south_africa_with_more_detail.pdf [Accessed 2 February 2019]

Joseph, S., L. & Karuri-Sebina, G., 2014. *From housing to human settlements: an evolving perspective*. South African Cities Network. [Online] Available from http://sacitiesnetwork.co.za/ wp-content/uploads/2014/07/secondary_cities_in_south_africa_with_more_detail.pdf [Accessed 2 February 2019]

Karusseit, C. & Gibberd, A., 2009. Towards inclusion: a critical appraisal of legislation and the South African Standard, Part S. *Acta Structilia: Journal for the Physical and Development Sciences*, 16(1): 65–81.

Kett, M. & Deluca, M., 2016. Transport and access to inclusive education in Mashonaland West Province, Zimbabwe. *Social Inclusion*, 4(3):61–71. [Online] Available from https://pdfs.semantic scholar.org/bec9/b3c437935bdba2d4a2b66809af3c77cb0886.pdf [Accessed 2 February 2019]

Kidd, K., Wapling, L., Bailey-Athias, D. & Tran, A. 2018. *Social protection and disability in South Africa*. Working Paper. Orpington, UK. Development Pathways.

King, M., 2014. *Quakernomics: an ethical capitalism*. London. Anthem Press.

Kose, S., 1998. From barrier-free to universal design: an international perspective. *Assistive Technology*, 10(1): 44–50. [Online] Available from https://www.academia.edu/3210777/ From_Barrier-Free_to_Universal_Design_An_International_Perspective [Accessed 5 May 2019]

Kunieda, M. & Roberts, P., 2006. *Inclusive access and mobility in developing countries*. Washington, DC. World Bank. [Online] Available from https://www.academia.edu/5325599/ Inclusive_access_and_mobility_in_developing_countries [Accessed 2 February 2019]

Labuschagne, F.J.J., 2016. *Cost of crashes in South Africa*. Prepared for the Road Traffic Management Corporation Research and Development. [Online] Available from: https://www.comparecarinsurance.co.za/wp-content/uploads/2016/12/car-crash-insurance-cost-south-africa-RTMC-Aug-2016.pdf [Accessed 2 February 2019]

Landman, K., 2004. Gated communities in South Africa: the challenge for spatial planning and land use management. *Town Planning Review*, 75(2): 151–172. [Online] Available from https://www.researchgate.net/publication/236144332_Gated_Communities_in_South_Africa_The_Challenge_for_Spatial_Planning_and_Land_Use_Management [Accessed 2 February 2019]

Lee, R.M., 1995. *Doing Research on Sensitive Topics*. California. Sage.

Lifchez, R. (ed.), 1987. *Rethinking architecture: Design students and physically disabled people*. California. University of California Press.

Litman, T. and Steele, R., 2017. *Land use impacts on transport*. Victoria Transport Policy Institute. Transport [Online] Available from https://www.vtpi.org/landtravel.pdf [Accessed 12 December 2019].

Litman, T., 2009. *Transportation cost and benefit analysis*. Victoria Transport Policy Institute, 31. [Online] Available from https://www.vtpi.org/tca/tca01.pdf [Accessed 12 December 2019]

Lord, J., Posarac, A., Nicoli, M., Peffley, K., McClain-Nhlapo, C. & Keogh, M., 2010. *Disability and international cooperation and development: a review of policies and practices*. Washington DC: World Bank. [Online] Available from https://www.researchgate.net/publication/241768758_Disability_and_international_cooperation_and_development_a_review_of_policies_and_practices [Accessed 2 February 2019]

Lucas, K., 2010. *The role of transport in the social exclusion of low income populations in South Africa. A scoping study*. 12th World Conference on Transport Research, 11–15 July, Lisbon, Portugal. [Online] Available from https://www.wctrs-society.com/wp-content/uploads/abstracts/lisbon/selected/01390.pdf [Accessed 2 February 2019]

Luymes, D. & Tamminga, K., 1995. Integrating public safety and use into planning urban greenways. *Landscape and Urban Planning*, 33: 391–400. [Online] Available from https://www.researchgate.net/publication/248535623_Integrating_public_safety_and_use_into_planning_urban_greenways [Accessed 2 February 2019]

Mabuse, K., 2010. *Towards a gender transport action agenda*. University of Cape Town. Master's dissertation.

Maja, P.A., Mann, W.M., Sing, D., Steyn, A.J. & Naidoo, P., 2011. Employing people with disabilities in South Africa. *South African Journal of Occupational Therapy*, 41(1): 24–32. [Online] Available from https://www.researchgate.net/publication/237188507_Employing_people_with_disabilities_in_South_Africa [Accessed 2 February 2019]

Makgoba, M.W., 2017. *The report into the circumstances surrounding the deaths of mentally ill patients: Gauteng province. No guns 94+ silent deaths and still counting*. The Life Esidimeni disaster: The Makgoba report 01 February 2017. The Health Ombudsman of South Africa. [Online] Available from http://www.politicsweb.co.za/documents/the-life-esidimeni-disaster-the-makgoba-report [Accessed 16 April 2018]

Mandela, N., 1995. *Long walk to freedom*. London. Abacus.

Mandela, N., 1994. *Address delivered on behalf of President Mandela by Jay Naidoo, Minister in the Office of the President, at the opening of the First Annual South African Junior Wheelchair Sports Camp, Johannesburg.* 4 December 1994. [Online] Available from http://www.mandela.gov.za/mandela_speeches/1994/941204_wheelchair.htm [Accessed 27 July 2019]

Mandela, N., 1978. *The struggle is my life*. London. International Defence and Aid Fund for Southern Africa.

Mandela, N., 1964. *I am prepared to die. Nelson Mandela's statement from the dock at the opening of the defence case in the Rivonia Trial*. NMS010. Nelson Mandela Foundation. [Online] Available from http://db.nelsonmandela.org/speeches/pub_view.asp?pg=item&ItemID=NMS010& txtstr=prepared%20to%20die [Accessed 2 February 2019]

Matsebula, M., Schneider, M. and Watermeyer, B., Integrating Disability within Government in Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. and Schneider, M., eds., 2006. *Disability and social change: A South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

Maunder, D.A.C., Venter, C.J., Rickert, T. & Sentinella, J., 2004. *Improving transport access and mobility for people with disabilities*. CILT Regional Conference, International Logistics and Transport. No. PA4061/04, Dubai. UAE. Transport Research Laboratory. [Online] Available from https://www.researchgate.net/profile/Christo_Venter2/publication/265240369_Maunder_ Improving_transport_access_and_mobility_for_people_with_disabilities/links/550fff2e0cf2ac2905af9 608.pdf [Accessed 12 December 2019]

McClain-Nhlapo, C., Watermeyer, B. & Schneider, M., Disability and human rights: the South African Human Rights Commission in Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. and Schneider, M., eds., 2006. *Disability and social change: A South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

McEwen, H., Kannemeyer, C. & Woolard, I., 2009. Social assistance grants. Analysis of the NIDS Wave 1 Dataset Discussion Paper No. 10 in *National Income Dynamics Study*. [Online] Available from http://www.nids.uct.ac.za/publications/discussion-papers/wave-1-papers [Accessed 20 March 2018]

Millington, P., 2013. A magazine article about Vic Finkelstein. [Blog] *Newsletter of Sweet Tree Home Care Services*, Autumn 2007, 4–5. [Online] Available from http://disabilityhistorydrc.blogspot.com/2013/05/a-magazine-article-about-vic-finkelstein.html?m=0 [Accessed 20 March 2018]

Mindell, J. & Karlsen, S., 2012. Severance and health: what do we actually know? *Journal of Urban Health*, Bulletin of the New York Academy of Medicine, 89(2). New York Academy of Medicine Community [Online] Available from: https://www.ncbi.nlm.nih.gov/ pmc/articles/PMC3324603/pdf/11524_2011_Article_9637.pdf/?tool=EBI [Accessed 25/6/2020]

Mitchell, J. 1987. *The selected Melanie Klein*. London. Peregrine.

Mitra, S., Posarac, A. and Vick, B., 2011. *Disability and poverty in developing countries: A snapshot from the World Health Survey*. World Bank. Elibrary [Online] Available from https://elibrary.worldbank.org/doi/abs/10.1596/27369 [Accessed 19/2/2021].

Mizuno, T., Nishidate, A., Tokuda, K. & Kunijiro, A.R.A.I., 2008. Installation errors and corrections in tactile ground surface indicators in Europe, America, Oceania and Asia. *IATSS Research*, 32(2): 68–80. [Online] Available from https://www.sciencedirect.com/science/article/ pii/S0386111214602107 [Accessed 20 March 2018]

Mlambo, V., 2018. An overview of rural–urban migration in South Africa: its causes and implications. *Archives of Business Research*, 6(4): 63–70. Archives of Business Research. [Online] Available from http://116.203.177.230/index.php/ABR/article/view/4407 [Accessed 28 June 2020]

Mutwa, V.C., 1967. *Indaba my children: African tribal history legends, customs and religious beliefs*. New York. Humanities Press.

Nagel, B. 2018. *Social progress index. Social progress imperative*. [Online] Available from https://www2.deloitte.com/content/dam/Deloitte/co/Documents/about-deloitte/Social-Progress-Index-2017.pdf [Accessed 18 September 2019]

Naicker, S., 2006. From policy to practice: A South African perspective on implementing inclusive education policy. *International Journal of Whole Schooling*, 3(1): 1–6. [Online] Available from https://files.eric.ed.gov/fulltext/EJ847472.pdf [Accessed 11 May 2019]

Nannan, N.N., Groenewald, P., Pillay-Van Wyk, V., Nicol, E., Msemburi, W., Dorrington, R.E. & Bradshaw, D., 2019. Child mortality trends and causes of death in South Africa, 1997–2012, and the importance of a national burden of disease study. *South African Medical Journal*, 109(7): 480–485. [Online] Available from http://www.samj.org.za/index.php/samj/ article/view/12646 [Accessed 11 May 2019]

Napier, M., 2002. *Apartheid city structure*. Source: Du Plessis and Landman. Scientific Diagram. [Online] Available from https://www.researchgate.net/figure/Apartheid-city-structure-by-M-Napier-Source-du-Plessis-and-Landman-2002_fig1_233018642 [Accessed 1 July 2020]

Nasar, J.L. & Evans-Cowley, J., 2007. *Universal design and visitability: from accessibility to zoning*. Ohio State University. [Online] Available from https://kb.osu.edu/bitstream/handle/1811/24833/UniversalDesign&Visitability2007.pdf;jsessionid=D4F180A17B03EB15DCB392381CB27A4A?sequence=2 [Accessed 11 May 2019]

National Disability Authority, 2012. *Universal design: an overview to considering body size and shape.* Centre for Excellence in Universal Design. [Online] Available at from http://universaldesign.ie/ [Accessed 1 November 2018]

National Treasury, 2019a. *Economic transformation, inclusive growth, and competitiveness: towards an economic strategy for South Africa*. Economic Policy. Pretoria. National Treasury.

National Treasury, 2019b. *Estimates of National Expenditure 2019. Vote 17 Social Development*. Economic Policy. Pretoria. National Treasury.

National Treasury, 2010–2020. *Division of Revenue Bill (DoRB)*. Issued annually. Public Transport Network Grant conditions. Pretoria. National Treasury.

New Zealand Transport Agency, 2009. *Pedestrian planning and design guide*. New Zealand Government. [Online] Available from https://www.nzta.govt.nz/resources/pedestrian-planning-guide/. [Accessed 11 May 2019]

Nkeli, J., 2001 in Howell, C., Chalken, S. & Alberts, T., The history of the Disability Rights Movement in Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. and Schneider, M. (eds), 2006. *Disability and social change: a South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

Noonan, R., 1914. *Ragged-trousered philanthropists*. London. Grant Richards.

Nyenti, M., 2014. *The role of access to justice in the development of socio-economic rights in South Africa.* Conference on Twenty Years of South African Constitutionalism. New York Law School, 13–16 November 2014. [Online] Available from http://www.nylslawreview.com/wp-content/uploads/sites/16/2014/11/Nyenti.pdf [Accessed 11 May 2019]

Oliver, M., 1990. *Politics of disablement*. London. Macmillan International Higher Education.

Osman, A. & Gibberd A., 2003. *Housing for special needs: physical interior design to accommodate special needs*. Johannesburg. Social Housing Foundation.

Pakenham, T., 1990. *Scramble for Africa*. New York. Random House.

Palmer, M., Williams, J. & McPake, B., 2016. *The cost of disability in a low-income country.* [Online] Available from https://www.un.org/development/desa/disabilities/wp-content/uploads/sites/15/2016/02/The-Cost-of-Disability-in-a-Low-Income-Country.pdf [Accessed 11 May 2019]

Papanek, V., 1977. *Designing for the real world*. Colorado. Paladin.

Phetuka, T., 2019. *Resourcing of the disability rights agenda. Partnership for economic empowerment of persons with disabilities.* Breakaway 5.6. Presidential Work Group on Disability Input, 25 July 2019. PowerPoint presentation. National Disability Rights Machinery. Pretoria. The Presidency.

Phooko, M.R., 2017. Evaluating Canadian and South African collaborative human rights initiatives: a preliminary analysis and research agenda. *Transnational Human Rights Review*, 4: 220. [Online] Available from https://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?article=1074&context=thr [Accessed 11 May 2019]

Pirkl, J.J., 1994. *Transgenerational design: products for an ageing population*. New York. Van Nostrand Reinhold Company.

Pointon, A. & Davies, C. (eds), 1997. *Framed: interrogating disability in the media*. London. British Film Institute.

Presidência da República, 2015. *Lei Brasileira de inclusão da pessoa com deficiência (Estatuto da Pessoa com Deficiência)*. LEI Nº 13.146, DE 6 DE JULHO DE 2015. Presidência da República Casa Civil. Subchefia para Assuntos Jurídicos. [Online] Available from http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/l13146.htm [Accessed 26 July 2019]

Presidency, 2019. *Concept paper for Disability Rights Awareness Month (DRAM2019) and a National Day of Persons with Disabilities (NDPD2019). 25 years of democracy: Together we can prioritise building a disability-inclusive and safe South Africa*. Version 2. Pretoria. Department of Women, Youth and People with Disabilities.

Public Transport Network Development, 2020. *Comments on the United Nations Decade of Action for Road Safety progress report for South Africa (2015–2019)*. UDA. (Internal document). Pretoria. Department of Transport.

Public Transport Network Development, 2019a. *Compliance with national laws affecting the built environment*, UDA. Position Paper. Pretoria. Department of Transport.
Public Transport Network Development, 2019b. *UDAP development presentations from 12/13 municipalities*. July 2019. UDA. (Internal document). Pretoria. Department of Transport.

Public Transport Network Development, 2019b. *Report on UDAP development*, 2019-2020. Pretoria. Department of Transport.

Public Transport Network Development, 2018a. *Aviation due diligence report*. UDA. (Internal document). Pretoria. Department of Transport.

Public Transport Network Development, 2018b. *Discussion paper on Dial-a-Ride*. UDA. Discussion Paper. Department of Transport. Pretoria. South Africa.

Public Transport Network Development, 2018c. *Emails to the South African Bureau of Standards*. UDA. (Internal document). Pretoria. Department of Transport.

Public Transport Network Development, 2018d. *Programme of Action on universally accessible minibus taxi services*. UDA. Pretoria. Department of Transport.

Public Transport Network Development, 2018e. *Report on UDAP development*, 2016–2018. Pretoria. Department of Transport.

Public Transport Network Development, 2011. *Position paper on Dial-a-Ride*. UDA. Position Paper. Pretoria. Department of Transport.

Public Transport Network Development, 2010. *Programme of Action on universally accessible public transport*. UDA. (Internal document). Pretoria. Department of Transport.

Ratzka, A., 1994. A brief survey of studies on costs and benefits of non-handicapping environments. In *CIB Proceedings of the International Congress on Accessibility in Rio de Janeiro, Brazil* (Vol. 8). [Online] Available at https://www.independentliving.org/cib/cibrio94access.html [Accessed 26 July 2019]

República Federativa de Brasil, 1988. *Constitución Política de 1988.* República Federativa de Brasil. [Online] Available from https://www.wipo.int/edocs/lexdocs/laws/en/br/br117en.pdf [Accessed 26 July 2019]

Republic of South Africa, 2019. *Inclusive education: status update. Basic education*. 30 October 2019. Parliamentary Monitoring Group. Cape Town. [Online] Available from https://pmg.org.za/committee-meeting/29205/ [Accessed 30 November 2019]

Republic of South Africa, 2018. *Statistics on post-school education and training in South Africa, 2016*. Pretoria. Department of Higher Education and Training.

Republic of South Africa, 2017. *National Strategic Framework on Universal Access and Design*. For consideration by accounting officers. August 2017. Pretoria. Department of Women, Youth and People with Disabilities.

Republic of South Africa, 2016. *National Land Transport Amendment Bill*. (B7-2016). Parliamentary Monitoring Group [Online] Available from https://pmg.org.za/bill/636/ [Accessed 19 February 2021].

Republic of South Africa, 2015a. *Code of good practice on employment of persons with disabilities*. Employment Equity Act, No. 55 of 1998. Pretoria. Department of Labour.

Republic of South Africa, 2015b. Letter from the Director-General, Social Development, to the Director-General, Department of Transport, 2015. *Steering committee for disability rights devinfo*

systems and discuss indicators and data sources. (Internal document). Pretoria. Department of Social Development.

Republic of South Africa, 2015c. *White Paper the Rights of Persons with Disabilities*. Pretoria. The Presidency.

Republic of South Africa, 2013a. *Baseline country report to the United Nations of the Implementation of the Convention on the Rights of Persons with Disabilities in South Africa*. Approved by Cabinet on 17 April 2013.

Republic of South Africa, 2013b. *Spatial Planning and Land Use Management Act*. No. 16 of 2013. (SPLUMA). Pretoria. Department of Rural Development and Land Reform.

Republic of South Africa, 2011. *National Development Plan: Vision for 2030*. National Planning Commission. [Online] Available from https://www.gov.za/sites/default/files/gcis_document/201409/devplan2.pdf [Accessed 28 January 2020]

Republic of South Africa, 2009a. *National Land Transport Act*. No. 5 of 2009. Pretoria. Department of Transport.

Republic of South Africa, 2009b. *Towards a fifteen-year review*. Pretoria. The Presidency.

Republic of South Africa, 2007a. *Broad-Based Black Economic Empowerment Codes of Good Practice. Section 9(1)*. Pretoria. Department of Trade, Industry and Competition, formally Department of Trade and Industry.

Republic of South Africa, 2007b. *Public Transport Strategy and Action Plan*. Pretoria. Department of Transport.

Republic of South Africa, 2003a. *Municipal Finance Management Act*. No. 56 of 2003. Pretoria. National Treasury.

Republic of South Africa, 2003b. *National Health Act*. No. 61 of 2003. Pretoria. Department of Health.

Republic of South Africa, 2002. *Code of good practice on employment of persons with disabilities*. Employment Equity Act, No. 55 of 1998. Reissued, 2015. Pretoria. Department of Labour.

Republic of South Africa, 2000a. *Municipal Systems Act.* No. 32 of 2000. Pretoria. Department of Corporate Governance and Traditional Affairs.

Republic of South Africa, 2000b. *Promotion of Equality and Prevention of Unfair Discrimination Act*. No. 4 of 2000. Pretoria. Department of Justice.

Republic of South Africa, 1999a. *Public Finance Management Act*. No. 23 of 1999, as amended 2010. Pretoria. National Treasury.

Republic of South Africa, 1999b. *Skills Development Levies Act*. No. 9 of 1999. Pretoria. Department of Labour.

Republic of South Africa, 1998a. *Employment Equity Act*. No. 55 of 1998. Pretoria. Department of Labour.

Republic of South Africa, 1998b. *Municipal Structures Act*. No. 117 of 1998. Pretoria. Department of Corporate Governance and Traditional Affairs.

Republic of South Africa, 1998c. *Skills Development Act*. No. 97 of 1998. Pretoria. Department of Higher Education and Training.

Republic of South Africa, 1997a. *White Paper on an Integrated National Disability Strategy (INDS)*. Pretoria. Office of the Deputy President.

Republic of South Africa, 1997b. *White Paper for Social Welfare*. Pretoria. (Formerly Department of Welfare). Department of Social Development.

Republic of South Africa, 1996a. *National Education Policy Act*. No. 27 of 1996. Pretoria. Department of Education.

Republic of South Africa, 1996b. *Constitution of the Republic of South Africa, 1996.* Pretoria.

Republic of South Africa, 1996c. *Road Traffic Act.* No. 93 of 1996. Pretoria. Department of Transport.

Republic of South Africa, 1996d. *South African Schools Act.* No. 84 of 1996. Pretoria. Department of Transport.

Republic of South Africa, 1995. *Development Facilitation Act.* No. 67 of 1995. Pretoria. Department of Rural Development and Land Reform.

Republic of South Africa, 1991. *Less Formal Township Establishment Act.* No. 113 of 1991. Pretoria. (Formerly the Department of Land Affairs). Department of Rural Development and Land Reform.

Republic of South Africa, 1977. *National Building Regulations and Building Standards Act.* No. 103 of 1977. As amended, 2008. Pretoria. Department of Trade, Industry and Competition, formally Department of Trade and Industry.

Ribbens, H., Everitt, P. and Noah, M., 2008. *Impact of an adequate road environment on the safety of non-motorised road users*. Medical Research Council & University of South Africa. [Online] Available from https://researchspace.csir.co.za/dspace/handle/10204/2756 [Accessed 5 May 2019]

Rickert, T., Santos, J.J., Silvestre, G., Schultze, R., Rickert, S., Meslin, P. & Andani, A.A., 2017. *Bridging the gap. Your role in transporting children to school in developing countries*. San Francisco. Access Exchange International.

Road Traffic Management Corporation (RTMC), 2012. South African Road Safety Audit Manual. Second Edition. Johannesburg. Road Traffic Management Corporation [Online] from: https://www.rtmc.co.za/images/rtmc/docs/publications/rsaudit/Road%20Safety%20Manual%20May%202012re.pdf [Accessed 19 February 2021]

Roberts, B., 2008. *Age of hope or anxiety? Dynamics of the fear of crime in South Africa*. Pretoria. Human Sciences Research Council. [Online] http://www.hsrc.ac.za/uploads/page Content/1089/Age%20of%20hope%20or%20anxiety.pdf [Accessed 12 December 2019]

Roberts, P. & Babinard, J., 2004. *Transport strategy to improve accessibility in developing countries*. Washington. World Bank. [Online] Available from http://documents.worldbank.org/curated/en/104891468096549930/Transport-strategy-to-improve-accessibility-in-developing-countries [Accessed 12 December 2019]

Rowland, W., 2004. *Nothing about us without us. Inside the Disability Rights Movement of South Africa*. UNISA press. [Online] Available from http://uir.unisa.ac.za/bitstream/handle/10500/19447/Rowland__W__1868882596__Section1.pdf?sequence=1&isAllowed= [Accessed 12 June 2019]

Rydström, J., 2019. Disability, socialism and autonomy in the 1970s: case studies from Denmark, Sweden and the United Kingdom. *Disability and Society*, 34(14): 1–23. [Online] Available from https:// www.tandfonline.com/doi/full/10.1080/09687599.2019.1605883 [Accessed 12 December 2019]

Scott, I., 2019. *Universal Design Access Plan*. (Internal document). Western Cape Province. George Municipality.

Scott, I., 2018. *Universal Design Access Plan*. (Internal document). Eastern Cape Province. Buffalo City Municipality.

Seirlis, J. & Thompson, P., 2013. Marketing and communication. Chapter 2 in *Universal access review, Universal Design Access Plan*. (Internal document). Kwa-Zulu Natal Province. eThekwini Municipality.

She, P. & Livermore, G., 2006. Long-term poverty and disability among working-age adults: research brief. Cornell University Institute for Policy Research (August), in Fremstad, S., 2008. *Measuring poverty and economic inclusion: the current poverty measure, the NAS alternative, and the case for a truly new approach,* No. 2008–36. Center for Economic and Policy Research (CEPR). [Online] Available from https://www.researchgate.net/publication/23648976_Measuring_Poverty_and_Economic_Inclusion_The_Current_Poverty_Measure_the_NAS_Alternative_and_the_Case_for_a_Truly_New_Approach [Accessed 28 January 2019]

Shoot, B., 2017. The 1977 disability rights protest that broke records and changed laws. *Atlas Obscura*. [Online] Available from https://www.atlasobscura.com/articles/504-sit-in-san-francisco-1977-disability-rights-advocacy [Accessed 29 July 2019]

Social Progress Imperative, 2018. *2018 Social Progress Index*. Washington DC. Social Progress Imperative.

South African Bureau of Standards, 2011. *Facilities for persons with disabilities*. SANS 10400-S. 3rd ed. Pretoria. South African Bureau of Standards.

South African Bureau of Standards, 2010. *The application of the National Building Regulations*. SANS 10400-A. General Principles and Requirements. 3rd ed. Pretoria. South African Bureau of Standards.

South African Bureau of Standards, 2008. *Design for access and mobility – tactile indicators*. SANS 784: 2008. Pretoria. South African Bureau of Standards.

South African History Online, 2018. Congress of the People and the Freedom Charter, 1955, SAHO. [Online] Available from https://www.sahistory.org.za/article/congress-people-and-freedom-charter [Accessed 10 December 2018]

South African Human Rights Commission, 2018. *Learners at special-needs schools. the management of and rights of learners at special-needs schools. Research brief*. Johannesburg. SAHRC. [Online] Available from https://www.sahrc.org.za/home/21/files/The%20Right%20to%20 Education%20for%20Special%20Needs%20Learners%202017-2018.pdf [Accessed 26 July 2019]

South African Human Rights Commission, 2017. *Research brief on disability and equality in South Africa, 2013–2017*. Johannesburg. SAHRC. [Online] Available from https://www.sahrc.org.za/ home/21/files/RESEARCH%20BRIEF%20ON%20DISABILITY%20AND%20EQUALITY%20IN% 20SOUTH%20AFRICA%202013%20to%202017.pdf [Accessed 26 July 2019]

South African Human Rights Commission, 2002. *Towards a barrier-free society: a report on accessibility and built environments*. South African Human Rights Commission. Johannesburg, South Africa. [Online] Available from https://www.sahrc.org.za/home/21/files/Reports/towards_ barrier_free_society.pdf2002.pdf [Accessed 1 December 2010]

South African Police Service, 2019. *Crime situation in the Republic of South Africa twelve (12) months. April to March 2018–19*. South African Police Service. Pretoria. South Africa. [Online] Available from https://www.saps.gov.za/services/long_version_presentation_april_to_march_2017 _2018.pdf [Accessed 12 December 2019]

Standards Australia, 2002. *Design for access and mobility: Tactile Indicators.* AS/NZS 1428.4:2002. Standards Australia. [Online] Available from https://www.standards.org.au/standards-catalogue/sa-snz/other/me-064/as-slash-nzs--1428-dot-4-[Accessed 12 December 2019]

Standards Australia, 1992. *Design for access and mobility: requirements for children and adolescents with physical disabilities.* AS 1428.3–1992. Standards Australia. [Online] Available from https://infostore.saiglobal.com/en-us/Standards/AS-1428-3-1992 127771_SAIG_AS_AS_ 269998/ [Accessed 12 December 2019]

Statistics South Africa, 2019a. *Mid-year population estimates*. Statistical Release P0302. Pretoria. Statistics South Africa. [Online] Available from http: //www.statssa.gov.za/ publications/P0302/P03022019.pdf [Accessed 12 December 2019]

Statistics South Africa, 2019b. *Unemployment rate by education level and age group. Quarter 1*. Pretoria. Statistics South Africa. [Online] Available from http://www.statssa.gov.za/?p=12121 [Accessed 12 December 2019]

Statistics South Africa, 2018. *Crimes against women in South Africa*. Report 03-04-05. June 2018. Crime Statistics Series, vol. V. Pretoria. Statistics South Africa. [Online] Available from https://www.statssa.gov.za/publications/Report-03-40-05/Report-03-40-05June2018.pdf [Accessed 12 December 2019]

Statistics South Africa, 2017. *Poverty trends in South Africa.* Pretoria. Statistics South Africa. [Online] Available from: https://www.statssa.gov.za/publications/Report-03-10-06/Report-03-10-062015.pdf [Accessed 28 June 2020]

Statistics South Africa, 2016. *Community survey, 2016*. Statistical release P0301. Pretoria. Statistics South Africa. [Online] Available from http://cs2016.statssa.gov.za/wp-content/ uploads/2016/07/NT-

30-06-2016-RELEASE-for-CS-2016-_Statistical-releas_1-July-2016.pdf [Accessed 12 December 2019]

Statistics South Africa, 2014a. *National household travel survey, 2013.* Technical report. Report No. 03-20-01. 2013. Pretoria. Statistics South Africa. [Online] Available from http://www.statssa.gov.za/publications/Report-03-20-01/Report-03-20-012013.pdf [Accessed 12 December 2019]

Statistics South Africa, 2014b. *Profile of persons with disabilities in South Africa, 2011*. Report no. 03-01-59. Pretoria. Statistics South Africa. [Online] Available from https://www.statssa.gov.za/publications/Report-03-01-59/Report-03-01-592011.pdf [Accessed 12 December 2019]

Statistics South Africa, 2013. *National household travel survey*. Revised July 2014. Pretoria. Statistics South Africa. [Online] Available from http: //www.statssa.gov.za/publications/ P0320/P03202013.pdf [Accessed 12 December 2019]

Statistics South Africa, 2011. *Census 2011. Census in brief*. StatsSA. Pretoria. South Africa. [Online] Available from https: //www.statssa.gov.za/publications/P03014/P030142011.pdf [Accessed 12 December 2019]

Statistics South Africa, 2001. *Census in brief*. Report no. 03-02-03. 2001. Pretoria. Statistics South Africa. [Online] Available from http://www.statssa.gov.za/census/census_2001/census_in_brief/CIB2001.pdf [Accessed 12 December 2019]

Stein, M.A. & Stein, P.J., 2014. Disability, development, and human rights: a mandate and framework for international financial institutions. *UC Davis Law Review*, 47; 1231–1278. [Online] Available from https://lawreview.law.ucdavis.edu/issues/47/4/Articles/47-4_Stein.pdf [Accessed 18 April 2019]

Steinbeck, J., 1939. *The grapes of wrath*. New York. Viking Press.

Steinfeld, E., 2005. *Education for all: the cost of accessibility. Education notes*. Washington DC. Human Development Network Education, World Bank. [Online] Available from https://eric.ed.gov/ ?id= ED493631 [Accessed 18 April 2019]

Stevance, A.S., 2015. *Review of targets for the Sustainable Development Goals: the science perspective*. Paris: International Council for Science (ICSU) & International Social Science Council (ISSC). [Online] Available from https://council.science/ publications/review-of-targets-for-the-sustainable-development-goals-the-science-perspective-2015/ [Accessed 18 April 2019]

Stienstra, D., Fricke, Y., D'Aubin, A. & research team, 2002. *Baseline assessment: inclusion and disability in World Bank activities*. [Online] Available from Washington DC http://wbln0018 [Accessed 2 October 2003]

Story, M.F., Mueller, J.L. & Mace, R.L., 1998. *The universal design file. Designing for people of all ages and abilities,* Chapter 1: 1–5. Raleigh, NC. Center for Universal Design, NC State University. [Online] Available from https://eric.ed.gov/?id=ED460554 [Accessed 18 April 2019]

Swain, J., Finkelstein, V., French, S. & Oliver, M. (eds), 1994. *Disabling barriers – enabling environments*. California. Sage.

Szporluk, M., 2015. *The right to adequate housing for persons with disabilities living in cities: towards inclusive cities*. United Nations Human Settlement Programme (UN-Habitat). [Online] Available from https://issuu.com/unhabitat/docs/disability_report [Accessed 18 April 2019]

Szporluk, M., 2009. A framework for understanding accountability of international NGOs and global good governance. *Indiana Journal of Global Legal Studies*, 16(1): 339–361. [Online] Available from https://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1393& context=ijgls [Accessed 18 April 2019]

Thobela, O., 2017. *Universal access on A Re Yeng services*. Report. UDA. (Internal document). Pretoria. Department of Transport.

Thobela, O. & Gibberd, A., 2019. *Do roads connect or divide? The other side of the road*. Southern African Transport Conference. [Online] Available from https://www.satc.org.za/ conference-papers.html [Accessed 18 April 2019]

Thompson, P., 2016. *Universal design access plan for Rea Vaya*. (Internal document). Gauteng Province. City of Johannesburg.

Thompson, P., 2013. *Universal Design Access Plan*. (Internal document). Gauteng Province. City of Ekurhuleni.

Tilley, A., 1993. *The measure of man and woman. Human factors in design*. New York. Henry Dreyfuss Associates.

Transport for London, 2018. *London underground stations renewals and enhancements programme*. 3 July 2018. Programmes and Investments Committee. [Online] Available from http://content.tfl.gov.uk/pic-20180703-item13-lu-stations-renewals-and-enhancements-programme.pdf/ [Accessed 12 December 2019]

Trombly, C., 1995. *Occupational therapy for physical dysfunction*. 4th ed. Baltimore. Williams and Wilkins.

Turok, I., 2020. Planned mega-projects in Gauteng. Scientific diagram. [Online] Available from https://www.researchgate.net/figure/Planned-mega-projects-in-Gauteng_fig1_283582993 [Accessed 1 July 2020].

Union of the Physically Impaired against Segregation (UPIAS), 1981. *Disability challenge,* 1. [Online] Available from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/UPIAS-Disability-Challenge1.pdf [Accessed 1 November 2018]

United Nations, 2018a. *Concluding observations on the initial report of South Africa*. Committee on the Rights of Persons with Disabilities. Advanced Unedited Edition. Distributed 21 September 2020. CRPD/C/ZAF/CO/1.

United Nations, 2018b. *United Nations 2018 flagship report on disability and development: realization of the Sustainable Development Goals by, for and with persons with disabilities*. A/73/220. United Nations. [Online] Available from https://www.un.org/development/desa/ disabilities/wp-content/uploads/sites/15/2018/12/UN-Flagship-Report-Disability.pdf [Accessed 12 December 2019]

United Nations, 2016. *Transforming our world: the 2030 agenda for sustainable development*, A/RES/70/1. United Nations. [Online] Available from https://sustainabledevelopment.un.org/post2015/transformingourworld [Accessed 12 December 2019]

United Nations, 2015. *Sendai Framework for Disaster Risk Reduction 2015–2030*. United Nations Special Representative for Disaster Risk Reduction. [Online] Available from https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030 [Accessed 4 January 2020]

United Nations, 2006. *United Nations Convention on the Rights of Persons with Disabilities*. United Nations. [Online] Available from https://www.un.org/disabilities/documents/convention/ convoptprot-e.pdf [Accessed 1 December 2010]

United Nations, 1993. *Standard Rules on the Equalization of Opportunities for People with Disabilities.* United Nations Enable [Online] Available at: https://www.un.org/development/desa/disabilities/standard-rules-on-the-equalization-of-opportunities-for-persons-with-disabilities.html [Accessed 28 June 2020]

United Nations Department for Economic and Social Affairs, 2016. *Good practices of accessible urban development*. UN DESA. [Online] Available from https://www.un.org/development/desa/undesavoice/more-from-undesa/2016/11/29730.html [Accessed 12 December 2019]

United Nations Department for Economic and Social Affairs, 2015. *Disability and development. Disability inclusion and accessible urban development*. Case study for UN DESA Forum. UN DESA. Nairobi, 28–30 October 2015. Government of Ecuador.

United Nations Development Programme, 2019. *Human Development Report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century*. United Nations Development Programme. [Online] Available from http://hdr.undp.org/sites/default/files/hdr2019.pdf. [Accessed 21 December 2019]

United Nations Development Programme, 2016. *UNDP support to the implementation of the 2030 Agenda for Sustainable Development.* UNDP Policy and Programme Brief. United Nations Development Group. [Online] Available from https://www.undp.org/content/dam/undp/library/SDGs/SDG%20Implementation%20and%20UNDP_Policy_and_Programme_Brief.pdf [Accessed 12 December 2019]

United Nations Development Programme, 2014. *Delivering the post-2015 development agenda. Opportunities at the national and local levels*. United Nations Development Group. [Online] Available from https://sustainabledevelopment.un.org/content/documents/1909UNDP-MDG-Delivering-Post-2015-Report-2014.pdf [Accessed 12 December 2019]

United Nations Development Programme, 2011. *Human development report, sustainability and equity: a better future for all*. [Online] Available from http://hdr.undp.org/sites/default/files/reports/271/hdr_2011_en_complete.pdf [Accessed 12 December 2019]

United Nations International Children's Emergency Fund, 2018. *Education budget brief, South Africa, 2018/2019*. United Nations Children's Fund. [Online] Available from https://www.unicef.org/esaro/UNICEF-South-Africa-2018-Education-Budget-Brief.pdf [Accessed 12 December 2019]

United States of America, 1990. *Americans with Disabilities Act of 1990*. Public Law 101–336. 108th Congress, 2nd session. Enacted July 26, 1990. [Online] Available from https://www.ada.gov/ pubs/adastatute08.htm [Accessed 11 May 2019]

Universal Design and Universal Access (UDA), 2020. *Consolidated complaints for reporting on the White Paper on the Rights of Persons with Disabilities, 2015*. Pretoria. Department of Transport.

Universal Design and Universal Access (UDA), 2010. *Baseline assessment of the Public Transport Strategy*. (Internal Document). Pretoria. Department of Transport.

Vanderschuren, M.J., Phayane, S.R. & Gwynne-Evans, A.J., 2019. Perceptions of gender, mobility, and personal safety: South Africa moving forward. *Transportation Research Record*, 2673(11): 616–627. [Online] Available from https://journals.sagepub.com/doi/full/10.1177/ 0361198119854087 [Accessed 12 December 2019]

Venter, C., Mashiri, M., Rickert, T., Maunder, D., Sentinella, J., De Deus, K., Venkatesh, A., Munthali, A. & Bogopane, H., 2004. Towards the development of comprehensive guidelines for practitioners in developing countries in *Proceedings of the 10th International Conference on Mobility and Transport for Elderly and Disabled Persons (TRANSED 2004),* 23–26. [Online] Available from https://trl.co.uk/sites/default/files/Annual%20 Research%20Review%202004.pdf [Accessed 12 December 2019]

Walker, A., Universal access and the built environment – or from glacier to garden gate in Zarb, G. (ed), 1995. *Removing disabling barriers*, 38–48. London. Policy Studies Institute.

Washington Group, 2016. *The Washington Group short set on functioning* (WG-SS) [Online] Available from: http://www.washingtongroup-disability.com/wp-content/uploads/2016/12/ Disability-Measurement-and-Monitoring-Using-the-WG-Disability-Questions-July-2018.pdf [Accessed 28 January 2020]

Watermeyer, B., Swartz, L., Lorenzo, T., Priestley, M. & Schneider, M. (eds), 2006. *Disability and social change: a South African agenda*. HSRC Press. [Online] Available from http://repository.hsrc.ac.za/handle/20.500.11910/6540 [Accessed 15 January 2018]

Welch, P. (ed.), 1995. *Strategies for teaching universal design*. California. MIG Communications.

Woods, D., 1978. *Biko*. London. Penguin Books.

World Bank, 2019. Gini index. World Bank estimate [Online] Available from https://data.worldbank.org/indicator/SI.POV.GINI [Accessed 28 June 2020]

World Bank, 1999. *Pollution Prevention and Abatement Handbook*. Washington, DC: World Bank. [Online] Available from https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_ppah_wci_1319577543003 [Accessed 19 February 2021]

World Bank, 1991. *Environmental Assessment Sourcebook*. Washington, DC: World Bank. [Online] Available from http://documents1.worldbank.org/curated/en/223391468174870007/pdf/multi-page.pdf [Accessed 19 February 2021]

World Health Organization, 2018a. *Global status report on road safety*. Geneva. World Health Organization. [Online] Available from https://www.who.int/health-topics/road-safety#tab=tab_1 [Accessed 12 December 2019]

World Health Organization, 2018b. *Non-communicable diseases country profiles*. Geneva. World Health Organization. [Online] Available from https://www.who.int/nmh/publications/ncd-profiles-2018/en/ [Accessed 12 December 2019]

World Health Organization, 2016. *Ambient air pollution: a global assessment of exposure and burden of disease*. Geneva. World Health Organization. [Online] Available from https://www.who.int/phe/publications/air-pollution-global-assessment/en/ [Accessed 12 December 2019]

World Health Organization, 2011. *The world report on disability*. World Health Organization and the World Bank. WHO/NMH/VIP/11.01. [Online] Available from https://www.who.int/disabilities/world_report/2011/report.pdf [Accessed 20 March 2018]

World Health Organization, 2002. *Towards a common language for functioning, disability and health ICF*. WHO/EIP/GPE/CAS/01.3. [Online] Available from https://www.who.int/classifications/icf/icfbeginnersguide.pdf [Accessed 12 February 2019]

Zarb, G. (ed.), 1995. *Removing disabling barriers*. London. Policy Studies Institute.

Zegeer, C.V., Stewart, J.R., Huang, H.H., Lagerwey, P.A., Feaganes, J.R. & Campbell, B.J., 2005. *Safety effects of marked versus unmarked crosswalks at uncontrolled locations final report and recommended guidelines* (No. FHWA-HRT-04-100). United States. Federal Highway Administration. Office of Safety Research and Development. [Online] Available from https://www.fhwa.dot.gov/publications/research/safety/04100/04100.pdf [Accessed 12 February 2019]

Zero Project, 2018. *Implementation strategy to guide the provision of accessible public transport in South Africa. Innovative policy award 2018*. [Online] Available from https://zeroproject.org/policy/pol183075zaf-factsheet/ [Accessed 20 January 2019]

Zero Project, 2014. *Inclusive design of Cape Town's bus system. Innovative policy award 2014*. [Online] Available from https://zeroproject.org/policy/cape-town/ [Accessed 20 January 2019]

Constitutional Court Cases

Government of the Republic of South Africa. & ORS v Grootboom and ORS 2000 (11) BCLR 1196. (CC).

APPENDIX A: BASELINE ASSESSMENT

Thematic area	Identified mechanism	Evidence of mechanisms	Alignment to PTND UDA function and KPIs
Inclusion measures how people with disabilities are taken into account in the design, implementation and evaluation of strategies, policies, programmes and projects.	Public Transport Strategy	Indicates that all transport, whether new or existing, must become 100% or universally accessible.	The inclusion and participation aspects of the disability inclusion project in the DoT led to the following elements of the UDA function in PTND: Monitoring and evaluation of progress in implementing universal design and universal access in all 13 IPTN projects. Providing information and skills (through the grant to obtain professional services) to support and develop municipal competence. Devising tools to assist municipalities in understanding their role and providing a means of gathering data to support implementation (position papers, discussion papers, briefing notes, implementation frameworks, assessment frameworks and templates, PowerPoint presentations). Providing reports and assessments to demonstrate how universal access is applied. Providing outcome oversight to help to make sure that grant funds are spent to achieve project outcomes. The conditions in the grant oversight letter issued annually to municipalities are that the grant's universal access mechanisms must adhere to the following criteria: • **Strategic goal:** to support the Public Transport Strategy, which requires 100% accessibility. • **Outputs:** formulation of the UDAP as part of the operational plan, which progresses in line with the planning and operation of the system. • **Grant conditions:** all public transport infrastructure and services funded through this grant must ensure there is provision for
	Accessible Public Transport Strategy	Explains how the goal of 100% accessibility should be reached.	
	Programme of Action	Devises a Programme of Action and process for an enabling environment and oversight to support universal access.	
	National Land Transport Act	Identifies excluded public transport users and the legal approach to their inclusion. Includes promulgating inclusion regulations affecting all operators by the Minister.	
	Public Transport Network Grant	Development of a Universal Design Access Plan has always been a grant output since the grant's inception in 2011.	
Participation measures the extent to which people with disabilities and their chosen representative organisations are given and able to use a voice in decisions made affecting their lives and the lives of their communities.	Development of the Public Transport Strategy and the National Land Transport Act (NLTA)	People with disabilities were consulted for the Moving South Africa study, 1999. Their input led to the development of the Public Transport Strategy and NLTA.	
	Development of the Accessible Public Transport Strategy and Programme of Action.	A task team of disability organisations led the development of the public consultation with people with disabilities for the DoT.	
	Involvement in the municipal implementation of ITPNs	Municipalities (are supposed to) consult people with disabilities and provide evidence. They are supposed to provide a detailed research study with people with disabilities who are residents in the municipality.	
	NLTA (Chapter 2, Section 18(5)) and disability rights monitoring under the White Paper on the Rights of Persons with Disabilities	Consultation with stakeholders of the DoT on all modes of transport, both new and existing.	
		Requires annual	

Thematic area	Identified mechanism	Evidence of mechanisms	Alignment to PTND UDA function and KPIs
		submissions on the number of passenger complaints.	the needs of special categories of passengers in line with the requirements of Chapter 2, Section 11(1)(c)(xiv) of the National Land Transport Act. • **Grant conditions:** Compliance with the National Building Regulations (2008), in particular SANS 10400-S (2011), in all aspects of the built environment.
Access measures how people with disabilities can use the built and natural environments, as well as information and communication systems	Development of a travel chain and programmes through the Programme of Action so that every area of public transport has a minimum standard that supports the implementation of universal access to services. This is a requirement of the NLTA.	WPRPD and UDAP require access audits (assessment against developed standards) on IPTN transport projects. UDAP development requires annual reporting against the standards, on all aspects of the travel chain. The complaints system requires analysis of barriers to transport.	Development of national standards for infrastructure, information and communication against which implementation can be monitored, and integration of these with existing national standards. Support SABS in the development of national standards that support universal design. Support the DoT in revising transport standards developed during apartheid.
		Provides the mechanism for embedding knowledge within municipalities.	Development of training and capacity-building programmes for municipal officials on universal access in transport.

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
Inclusion			
Lending: Disability included in lending documents such as investment and adjustment loans	Considerable work is needed to include disability in lending projects, but World Bank staff will first need training, models and advice on how to do this effectively.	The DoT developed PTNG criteria with a disability-inclusion focus. The PTNG is not a loan; it is a grant to the 13 IPTN municipalities.	The PTNG applies only to new bus systems and walking. Public expectation of universal access applies to all modes, supported by the DoT's legislation, policy and strategy.
		The grant provides money to appoint specialist consultants that can provide training, and the development of internal training is supported.	If municipalities do not voluntarily appoint an access consultant and develop an internal training programme, they have no access to training.
	Bank staff, client governments and disabled people need an indication of where the Bank intends to take its action around disability.	National government has given mixed and confusing messages about the place of the monitoring function of Disability Rights since it was removed from the Presidency in 2009.	Although the 15-year review report (RSA: 2009b)indicated that a mainstreaming approach should be taken to disability inclusion, no government departments received training on how to do this.
Knowledge: Knowledge gathering and dissemination on disability issues	Host a high-profile, catalytic event, to launch a framework for action on disability in conjunction with the International Day of Disabled	All 13 IPTNS can launch new systems and showcase universal access, involving local residents with disabilities.	Independence of municipal practice means that if an IPTN implements UA in an incomplete way, despite national standards, the DoT has no means to prevent

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
	Persons.		it. Retrofitting costs are very high.
	Initiate, in the next six months, 2–3 pilot projects that model how disability can be mainstreamed. Countries (cities) selected should already exhibit a willingness to include disability. The results should be used to develop how-to manuals for use in other countries.	The WPRPD provides guidance. NTRs developed under the NLTA provide a platform for the development of new projects on inclusion. This master's dissertation is the first step towards writing up work, to develop other materials for municipal use.	Municipal officials may not agree to implement the WPRPD although it has been approved by Cabinet. Cities have proved to be eager to receive the grant, but not to spend it in accordance with the grant conditions, and no action is taken when they do not.
	In the next six months to one year, develop and distribute guidelines for all projects to assess direct and indirect aspects of disability inclusion.	PTNG Guidelines and Requirements have been distributed every year since 2011.	Municipalities have shown reluctance to follow guidelines and implement universal access requirements. No action is taken when they do not, and the grant is not stopped.
	Over the medium term, develop appropriate tools and financial supports to ensure that all Bank lending projects include disability, with a priority placed on projects in low-income countries.	The World Bank developed tools to assist with project management for IPTN municipalities in 2017 and 2018.	The World Bank itself failed to properly include universal access in its guidance on plan development. This has meant that the Bank has not supported national policy.
	Create, incorporate and monitor indicators for disability inclusion in Social Assessments, and the Country Policy and Institutional, Assessment, Questionnaire used to develop, Country Assessment Strategies.	Indicators for disability inclusion were developed by DSD for the NDP, and are included in the WPRPD. The PTNG Guidelines and Requirements indicators are also referenced.	The NDP, a national guidance document, failed to address disability as a rights issue. Indicators therefore appear as a secondary issue, an approach not supported by the Constitution.
	Monitor and assess the implementation of disability inclusion guidelines on a regular basis by sector-based staff with a mandate for disability inclusion within the context of other assessment exercises such as social assessments, International Development Association assessments and MDG assessments.	The WPRPD requires a series of assessments to be carried out on transport systems. These are requested from municipalities, and municipalities have to report on them annually. The MDGs, replaced by the SDGs, now include UA.	There is no observable willingness to implement the SDGs on urban development despite regulations for buildings. Has urban planning lost its function?
	Educate and work with sector specialists together with legal reform specialists to assist governments in including universal design principles and disability rights as part of their legislative frameworks.	Municipalities are advised to appoint sector specialists/ legal specialists (universal access consultants) to assist, advise and capacitate them.	Municipalities function as independent entities. They can refuse to appoint anyone, and refuse to implement universal access, depriving people with disabilities of their rights.
	Over the long term, create a strategy paper on disability and inclusion and shepherd it through the World Bank consultation and approval mechanisms.	The Accessible Public Transport Strategy was issued in 2009 to support existing disability rights legislation in transport.	No part of government has properly implemented the disability rights legislation for 20 years since PEPUDA was promulgated.
	To ensure that people with	The Disability Rights	Municipalities and national and

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
	disabilities are included in the Bank's poverty-reduction agenda, more knowledge needs to be created, shared and applied in the area of disability and development. The Bank is in a pivotal position to become a knowledge bank and broker in this area.	component of government has developed papers on the cost of disability and the WPRPD, which has been distributed throughout government. Reporting on it occurs annually.	provincial government have extremely complex ways of reporting with respect to transport. Apart from the three tiers of government that deliver transport services, there are 13 SOEs involved, all of which should report, but consistently fail to complete reporting templates or provide information to the focal person on disability in the DoT. This makes it impossible to report on implementation, and shifts the blame to the DoT for lack of implementation.
	Create, adapt or offer in collaboration a training module on disability inclusion within the World Bank Institute in January 2003, drawing on existing on-line disability studies courses offered around the world.	Training on universal access has begun through a Quality Council for Trades and Occupations (QCTO) process led by the African Association of Access Professionals (AAAP). Research on courses in other countries has been conducted to develop a local course.	Development of a national qualification for capacity building on universal access commenced five to six years after the programme began, which was late into the project. Although local experts have always been available for municipal staff, staff turnover and lack of knowledge of the social model of disability means a conventional course is required.
	Create additional training opportunities, learning events and tools related to disability inclusion over the next one to three years, including modules related to communications and information accessibility.	The UDA has developed position papers, discussion papers, templates and PowerPoint presentations explaining universal access, disability inclusion, and disability awareness.	This material has not yet formally been developed into modules on universal access for municipal staff.
	Events or tools on how to include people with disabilities in Poverty Reduction Strategy Papers and other consultations, the Action Learning Program on Participatory Processes in Poverty Reduction Strategies done by Social Development NGO unit and World Bank Institute.	Access consultants appointed to municipalities provide information on how to include people with disabilities and help municipal staff to do so. The DoT runs quarterly meetings with the disability sector.	Some municipalities choose not to appoint an access consultant and do not consult people with disabilities, thus denying them of their right to be consulted. There is no mechanism to prevent this.
	Training tools used to develop mandating documents such as Country Assistance Strategies.	Mandating documents include Acts of Parliament and Equality Court findings.	No action is taken against municipalities when they do not comply.
	Develop and implement a strategy to make the World Bank a knowledge bank on disability and development by creating and sharing knowledge in this area.	The DoT has sector-specific strategies and Acts, and has a monitoring mechanism to try to ensure municipal compliance.	National Treasury does not oversee social indicators, and does not see it as its role to do so. National Treasury oversees only the indicators related to grant spending. The approach of National Treasury is that government departments must develop and monitor their own indicators. There is no national monitoring mechanism related to

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
			the withdrawal of the grant for misspending.
	Undertaking a special or smaller issue of the *World Development Report on Disability*.	This master's dissertation is the first special or smaller issue of the *World Development Report on Disability (Mitra et al, 2011).*	Although Disability Rights has completed a number of national studies, these are not known or used across government.
	Including disability indicators in World Development Indicators.	Disability Rights developed disability indicators for government, which include high-level transport outcome indicators.	The disability indicators are not well known and there is no mechanism to ensure that they are used.
	Incorporating disability indicators in national census and household surveys funded by the Bank.	National Census and studies include disability indicators.	Indicators are not related to World Bank-funded projects. The Census information and other national studies provide sample sizes that are too small to be accurately used.
	Analysing the particular effects on various groups of disabled people in different regions as a result of financial and institutional reforms required as part of World Bank lending agreements.	If this were implemented by the World Bank, it would add impetus to the implementation of programmes that promote disability rights.	The World Bank has thus far not developed documents for IPTNs that are disability inclusive, and has produced documents that are not.
	Documenting and sharing inclusive practices used in Bank projects.	Documents of this nature, including the Baseline Assessment (Stienstra et al, 2002), are helpful.	The World Bank has not formally released this type of paper to the DoT.
	Collaborating with disabled peoples' organizations in the gathering and dissemination of knowledge	The DoT maintains an on-going relationship with disability NGOs and individuals with disabilities who complain about discrimination on transport services.	Municipalities are supposed to initiate regular consultation. Although the UDA has developed a series of tools to help municipalities, municipal staff are largely out of touch with residents with disabilities (in ten years, only one detailed consultative study has been conducted in all the 13 IPTNs combined).
	To undertake this work, disability needs to be specifically addressed in the mandates of the World Bank, its regions and sectors, and in negotiations with its client governments.	Disability is specifically addressed in the DoT mandates (legislation and grant).	Disability is addressed in only one grant, which causes confusion with other transport grants – there has been no extension into other grants.
	Some additional analysis is needed to provide good practice examples in sectors as well as relevant indicators.	Local good practice examples have been created within the IPTN system.	Different levels of municipal commitment to disability equality make it difficult to ensure consistency of equality in practice.
	These can then be incorporated in existing assessment guides.	Assessment guidelines are included in standard municipal templates.	Municipalities are not used to reporting on universal access, and senior municipal managers do not necessarily consider it important.
	Analyse how disability can be incorporated into the	Indicators have already been developed on IPTN	Regardless of the legal support for the indicators, municipalities are

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
	monitoring and assessment of the Millennium Development Goals (replaced by SDGs) and the Comprehensive Development Framework (CDF) and develop appropriate target indicators for these.	projects. These already dovetail with the SDGS and the NDP. The process used to develop indicators is supported by existing legislation.	reluctant to move away from existing practice, for reasons that are complex and still unclear, despite current practice not being supported by legislation.
	Develop, as soon as possible, good practice documents to feed into the on-going revisions to the *Environment Sourcebook*, targeting sectors including transportation and water (World Bank, 1991)	Good practice is encapsulated in international Zero Project Awards won in 2014 and 2018, national awards in 2018, and international journal articles in 2019.	No source book has yet been written, and there is no archive or website that is a national repository of information and literature.
Mandate: Disability included in mandating documents and negotiated priorities including: Millennium Development Goals, sector strategy documents, policy statements, country assessments etc.	Develop additional background papers, especially in non-traditional disability areas like finance and legal reform, for the *Poverty Reduction Sourcebook* (Deepa, 2002).	Background papers (discussion papers and position papers) are written regularly on a variety of topics and distributed widely; as are PowerPoint presentations by the DoT. Other papers have been published by the DSD on the cost of disability.	There does not seem to be any work in National Treasury or other economic departments on the cost of disability from a rights-based perspective, only in Social Development, which would appear to be the wrong department. Economic thinking has not evolved from a welfare approach, despite a rights-based Constitution.
	Additional funding resources will be required to include disability in World Bank activities.	The PTNG has clear conditions on disability rights and universal access.	No other transport grant includes conditions on disability rights and universal access, and it does not seem that such conditions are included in any mainstream grants either.
	Funding should initially be directed to increasing the inclusion of disability in lending projects, including through the Social Investment Funds, and providing tools for project task managers to use to do this.	Discussion papers demonstrate to municipalities how disability is already included in municipal responsibilities as well as the PTNG.	As well as the lack of disability inclusion in non-PTNG projects, there has been no disability-inclusion targeting across government or inclusion in other grants.
	Human resource capacities, drawing from inside and outside the Bank, should be increased to enable this work.	Municipalities are required to appoint an access consultant (with relevant experience and qualifications).	There is no action if municipalities decide not to appoint an access consultant, or to diminish the role of disability inclusion, despite laws to the contrary.
	Develop human resources within the Bank and draw on expertise outside the Bank to design, manage and evaluate Bank initiatives in the area of disability.	The DoT recommends that an external universal access consultant is appointed to develop municipal resources and staff.	There is no mechanism to ensure the appointment of an access consultant. In addition, implementation and compliance have been poor for the past 10 years; municipalities may thus not appoint because they do not want to find out what they are doing wrong. Finally, there are only a few qualified universal access consultants. The municipal supply chain does not function properly, leading to lack of external appointments and thus impacting

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
			on service delivery.
	Ensure that all projects funded by Social Investment Funds incorporate disability and develop tools to assist with this.	The PTNG incorporates disability-inclusion targeted outputs and grant conditions, which are monitored annually.	There has been no national study to determine which other social investment grants require grant conditions on disability inclusion and what those should be.
	Recruiting actively people with disabilities in the knowledge internship program and other recruitment programs.	Universal access consultants with disabilities are encouraged to act as experts to municipalities by the DoT.	There is no formal process to encourage the development of skills in the NGO sector among people with disabilities, nor to facilitate their appointment as municipal officials.
	Dedicate financial resources to disability inclusion, both to disability components or mainstreaming in general Bank projects, and full funding of disability-specific projects aimed at social and economic inclusion.	IPTNs are projects in the 13 largest municipalities specifically aimed at social and economic inclusion, and the PTNG is a dedicated grant for this purpose.	No work has yet been carried out by DPME to identify the other grants that should target disability inclusion as part of social and economic inclusion. Municipal mechanisms for grant spending in Supply Chain Management (SCM) appear insufficient, as sometimes up to 50% of this targeted grant remains unspent for SCM reasons.
	Leverage additional funding, especially through the small grants programmes and possibly through Social Investment Funds, to support capacity-building work among disabled persons' organisations (DPOs).	The DoT uses additional departmental funding to undertake direct consultation with the disability sector so that transport issues are raised directly with the department.	This is not a capacity-building programme, and whilst this does provide a direct feedback mechanism on the experiences of barriers to transport, there is no capacity-building element. Would this not be better placed with DPME or with another government department?
Resources: Investment in resources to increase disability inclusion (staff, capacity building for DPOs, budget allocations, etc.)	Develop and distribute good practices for disability resource allocation.	Comparisons between municipalities on grant expenditure would make it possible to compare spending on universal access.	Due to the lack of controls on compliance with minimum standards, spending on IPTNs in totality is vastly inflated on every aspect, not only universal access. There is no broader work by DPME or National Treasury to tackle this.
	The Bank has taken an initial step towards an accountability mechanism with the appointment of the Disability Advisor, but the mandate for disability inclusion needs to be as broad as the Bank's mandate for poverty reduction.	The PTND identified and filled a post for a disability advisor/universal access specialist for transport projects. Focusing on IPTNs, this post also works with and advises disability inclusion in all the DoT transport projects.	There has never been an analysis by National Treasury nor DMPE of the broader need to explore the mandate for disability inclusion in national funding mechanisms for poverty reduction. Although raised with National Treasury, the response has been that individual departments are responsible for targeting their own grants. How can this help resolve a national problem?
	Create a centre of responsibility for disability immediately with the highest level accountability (preferably to the President), cross-sectoral, cross-network authority and sufficient support and resources to undertake its work.	Municipalities have (or are supposed to have) disability desks close to the Mayor's office, and provinces in the Premier's office. The DSD funds the national NGO sector. The NGO sector is then responsible for making	A broad assessment based on output of these bodies raises the question of whether the Disability Rights structure has been put in place to overload those units with responsibility, rather than a mainstreaming approach where specific government programmes implement, and the Disability

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
		representation to different government Departments.	Rights structure monitors.
	The mandate should be to raise awareness, develop and share knowledge about disability, leverage participation and resources from within and outside the Bank, create partnerships, and monitor implementation of these actions and inclusion of disability within the Bank.	The PTND UDA programme has been used to develop new standards using universal design (which is already required in legislation). The private sector has thus become a partner where new innovation can result in new, inclusive local product development.	Although this innovation is possible, it is difficult to get new universally designed products accepted due to the existence of monopolies, plus the unwillingness of change management within the SCM process. Where municipalities prefer to promote products that discriminate, there are no mechanisms that result in actions against the municipality for choosing a discriminatory approach.
Accountability: Designated accountability on disability issues	In the medium term, establish disability focal points in all networks, sectors and regions, with the Disability Advisor acting to coordinate their work.	Disability focal points already exist in municipalities and provincial governments.	There is no national disability advisor coordinating their function throughout government. The function currently resides in the DSD and is not able to provide a national monitoring role to other government departments from this position.
	Focal points are staff whose primary responsibility is to address the inclusion of disability in the activities of their unit and coordinate with other focal points within and across networks or regions.	IPTNs were required by the DoT to establish focal points to report on progress in implementing universal access in all IPTN municipalities, with the support of an external universal access consultant.	The focal point function is not necessarily written into the job descriptions of municipal officials, and neither is their role fully conceptualised. In addition, senior management are not necessarily still aware of its Constitutional duty to provide government implementation of disability mainstreaming.
	Undertake a second assessment exercise in 2005 using the experiences of the Baseline Assessment.	This MSc provides an opportunity to review the use of the World Bank disability-inclusion evaluation framework.	This evaluation was informally undertaken in 2009 at the beginning of the PTNG implementation. However, there has been no similar national formal or information comparison.
Participation			
Consultation with disabled persons' organisations	Drawing on the Bank's experience with gender mainstreaming and its commitment to more participatory development and poverty reduction work suggests several ways to include representatives of disabled peoples' organizations in the Bank's work.	The NLTA and previous research into transport problems for people with disabilities draws strong comparisons between barriers created for people with disabilities and women.	Participation mechanisms and reporting mechanisms are set up to be disability and gender inclusive. However, this requires changes to an institutional system that was set up to discriminate. The desire within the system not to change is an effective way of keeping the mechanisms for mainstreaming ineffective.
	Create an external advisory committee on disability, including DPOs, and establish regular consultation procedures.	Disability groups meet with the DoT once every quarter and raise issues on discrimination and external advice.	The extent to which municipalities use a similar process is unknown, although they are advised to, and a review is required. The Presidential Working Group on Disability (PWGD) has just advised government after a two-and-a-

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
			half-year gap from appointment.
	Enhance the capability of DPOs to participate in Poverty Reduction Strategy Papers and Country Assistance Strategy consultations through demonstration sites.	Through development of the NLTA National Technical Requirements, demonstration sites are used to undertake research and provide evidence.	Instituting new standards in transport systems is a lengthy process, and the system is reluctant to change. Existing service operators do not want to change, as they are worried it would result in loss of business.
	Participate in events and networks organized by DPOs.	The DoT attends annual evaluations organised by NGOs and Disability Rights. The Minister of Transport was one of the few Ministers invited to meet with the PWGD.	There is a low level of commitment and participation across government departments to ensure that barriers to services are removed. Although this is extremely hard work and frequently frustrating, are there alternatives?
	Host conferences, inviting DPOs, governments with good practices and other multilateral donors, which focus on or include disability and development.	The DoT has participated in national and international conferences, symposiums and workshops to promote the work of the department.	The DoT attempted to host a conference in 2010 to launch the disability programme. The PTND was advised by the Deputy Minister of Transport not to do so as the costs associated with South Africa's hosting the FIFA World Cup in 2010 made hosting another conference unaffordable.
	To translate the perception of many Bank officials that disabled people might benefit from their work to the reality that they do benefit will require some sustained data on where people with disabilities already do benefit and how that changes over time.	The DoT collates the data gathered from indicators used in project roll-out, and reports on those to municipalities each year. This process has been in place since 2010 and forms a longitudinal study on the development of the projects.	Data gathered by national institutions using a mainstreaming approach provide small sample sizes that are too for generic analysis. More focused studies are required on disability in all areas of services delivery, nationally. Key government departments with a lever on social and economic transformation should be undertaking specific focused reports, including but not limited to the DoT.
	Introduce indicators to track disaggregated data about the level of disabled peoples' involvement in World Bank projects and assessment exercises.	Indicators have already been developed and are used to track the ability of people with disabilities to use mainstream transport.	National government indicators have been established, and a system is in place to track service delivery. However, where service delivery is lacking or is retrogressive, there are insufficient measures in place to reverse negative situations before disaster exposes ill treatment (Makgoba, 2017)
Beneficiaries: People with disabilities among beneficiaries	Together with the World Development Indicators team and other international bodies exploring disability indicators, develop indicators that illustrate the changes over time as a result of disability inclusion.	Longitudinal data from annual UDAP reports can be used to track progress in implementing transport systems. Current data demonstrate a decline in municipal performance from 2016–2018.	Indicators developed for transport focus on transport systems. National government indicators cover all aspects of service delivery, but have not been developed into an index that can track improvements in disability inclusion.
	Introduce indicators to track disaggregated data about the level of disabled peoples' involvement in World Bank projects and assessment	UDAP reporting indicators include indicators on the involvement of people with disabilities through	Although the indicators are provided, municipalities are currently not reporting on these indicators. Two of the reasons given are that it is too difficult in

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
	exercises.	collating complaints and POEs.	the current system and/or too expensive to collect such data.
	The Bank should draw on its advice on including indigenous peoples in decision-making and create parallel decision-making opportunities for people with disabilities.	Decision-making including people with disabilities takes place through quarterly national consultations with the disability sector.	Many members of South African society currently feel excluded, and as if their needs are immaterial. This could apply to indigenous peoples as well. It is conceivable that this World Bank work has broader application.
	Establish mechanisms both at World Bank headquarters and in the regions to formalize and routinize decision-making opportunities for disabled persons.	Processes are in place within UDAP development to implement disability-inclusive decision-making nationally and in municipalities.	Although the DoT can insure that it consults directly with the disability sector and acts on the advice provided, there are no mechanisms to ensure that national government does so as a whole, nor at municipal level.
Decision-making: Participation of disabled peoples' organisations in decision-making processes	Include the views of and create opportunities for the participation of disabled people in all social and environmental assessments, participatory poverty assessments, PRSPs and CAS.	Screening, identification, assessment and support (SIAS) processes are required as part of the UDAP development, from outline to mature, although none have yet been submitted.	There is little information in government for municipalities or the DoT on the role of universally accessible transport in poverty alleviation. Municipalities have tended not to work directly with disability groups or individual residents.
Access			
	Creating and implementing standards that enable the use of built environments for everyone's use is critical to addressing poverty reduction.	National standards have been developed and have applied since 2008–2011. They apply to housing and public buildings and to public space through the DoT extension projects.	These national standards have generally been ignored by municipalities. Levels of compliance, or even attempted compliance, are low. There is significant evidence that the standards make no difference, as there is no system for ensuring compliance, despite national laws to the contrary.
	This needs to be incorporated into the existing tools used by the World Bank to address environmental standards and policies.	By virtue of the PTNG and specific reference to SANS standards, the grant incorporates a level of compliance	There is disagreement between National Treasury and the DoT as to whether the grant's financial controls can be used for compliance with standards. There are underlying questions from the DoT on spending money without linking expenditure to outcomes.
Built environment: The extent to which buildings, transportation systems and the infrastructure are available to be used by all members of society.	Build disability inclusion into existing Bank assessment exercises by	The DoT has built disability inclusion into its programmes in PTND.	More broadly, the DoT disability inclusion is not implemented, and it is not implemented across government as a whole.
	Developing additional guidelines for universal access to built environments as part of the *Pollution Prevention and Abatement Handbook* (World Bank, 1999).	Guidelines and requirements have been developed by the PTND for inclusion in IPTN projects and are issued each year in line with the grant conditions.	There are no guidelines for national government. These have been developed by Disability Rights, both on universal access and responsible accommodation, but they have not been nationally issued since 2017.
	Including universal access as a criterion in Environmental Assessments.	The WPRPD requires the DoT to undertake access audits of transport services.	If compliance with existing standards is not met, costs of retrofitting are extremely high.
	Make the World Bank Group an accessible environment	PTND projects use universal design as the	There are unsolvable products with project design (e.g. buses

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
	for disabled staff, guests and clients by applying universal design principles to its structures and services.	basis for developing transport standards, infrastructure, products and plans.	may have the wrong chassis design and therefore it is not possible to produce a universally accessible bus). There is no enforcement of chassis design.
Communications and Information: The extent to which all people, including those with disabilities, are able to use and benefit from communications systems and information dissemination.	Building on the existing commitment to access and providing complementary work to the strategy paper, in this area will ensure the possibility of including disability at the least possible cost.	The PTND used this World Bank disability-inclusion evaluation framework as the baseline for the development of an implementation approach to the UDA project through the PTNG.	It has not been possible to prove that this approach has led to the inclusion of disability at the least possible cost. There are no other comparisons, and it can be shown that there has been a substantial amount of financial wastage in these projects.
	Draft a complementary paper to the ICT sector strategy paper to highlight the links between the Global information and communication technology's commitment to and understanding of access to ICTs, and the particular concerns and issues related to access to ICTs for disabled people.	Paper on inclusion in ICT developed and submitted for a conference on the relationship between exclusion in ICT and geographical exclusion caused by barriers in the built environment.	Paper rejected, in part because of the author's lack of experience. However, the reviewers identified reasons for the rejection that are circumspect and relate to an attempt to reconfigure the definition of the social model of disability. This undermines the essential tenet of the Disability Rights Movement and is a worrying academic move.
	Make the World Bank Group an accessible environment for disabled staff, guests and clients.	The DoT holds meetings in its offices, and people with a full range of disability have been able to attend.	There are no requirements for buildings owned and leased by the public sector to comply, and there are no national mechanisms for ensuring compliance in the private sector.
	Developing an alternate formats policy.	The DoT provides large print and electronic formats.	The national framework has been developed, but not published.
	Ensuring that course materials and modules are provided in accessible formats.	Courses have not yet been developed, but a sign language interpreter is procured.	The national requirement to ensure access to all courses for students with disabilities to course work materials is not properly implemented.
	Assessing the World Bank website for compliance with the W3C accessibility guidelines and making the necessary changes.	All Transport websites have been assessed and the findings circulated. None comply.	No action has been taken on non-compliance, and most information on websites is not accessible. Many websites are so inaccessible that sighted people cannot use them either.
Implementation of accommodation measures: The extent to which special measures for people with disabilities are included.			
Criteria to be applied to a limited selection of projects			
Social/economic integration: The project will promote social and economic integration of people with disabilities.	None provided	Transport projects naturally lend themselves to social and economic integration, and the DoT chose to implement this as early as 2009 through the PTNG in IPTN municipalities.	No national government approach has been taken to identifying the key intervention areas to promote social and economic integration. Urban planning should be one of these areas, because of the necessity to create an urban setting where everyone has access to choices in life and quality of life.
Project cycle inclusion: Disabled	None provided	Municipal projects are evaluated based on	Institutions of government and in the private sector find it difficult

Evaluation criteria	Recommendations by external experts on World Bank work	Indicative gap analyses on the DoT programme	
		Action taken	**Gaps identified**
persons' organisations (DPOs) or persons with disabilities are included throughout the project cycle, in design, implementation, and evaluation and monitoring.		complaints made, and are dealt with at the DoT. The DoT holds a national forum with people with disabilities, which enables cases to be discussed if not resolved. National government reports to Cabinet on the WPRPD, and to the UN on the UNCRPD, through five-yearly international reporting cycles.	to include people with disabilities, and tend not to do so rather than trying to find ways to make sure that everyone is included. Running a complaints system means having to find ways to tackle elements over which there is often no direct control. Furthermore, those who have the power to change the system are often not the people who deal with the complaints, thus making the recipient of the complaint feel powerless to act.
Source: UDA			

APPENDIX B: SUMMARY OF COMPLAINTS 2010–2020

Record of complaints from passengers with disabilities and other universal access passengers: 2010–2020

This table contains evidence of complaints from the UDA Masterfile, for reporting on the White Paper on the Rights of Persons with Disabilities (RSA, 2015c) and the UNCRPD (UN, 2006). In response to the requests received for passenger complaints, reports were developed in 2016, 2017, 2018 and 2019, and submitted to the Presidency through the Department of Social Development. At the time of writing, UDA is in the process of collating previous reports for 2009/2010–2014 and 2015 to record the historical aspects of the project. Although the complaints are recorded below, no formal report was submitted before the request was issued in 2015, from the DG of Social Development. No case is closed until it has been resolved. The number of cases that have been resolved is negligible, although the DoT may not always be aware of the outcome. However, it is probably in the region of 0.02% of cases. Complaints have been recorded since 2010, because the NLTA (RSA, 2009a) requires this of municipalities (Chapter 2, Section 18(5)), and because it has been a function of the DoT since 1999 (DoT, 1999). The reporting format used below was provided by the Presidency/DSD in 2015.

Passengers with and without disabilities will usually complain to the transport operator first. Therefore, this list does not represent an entire list of complaints on any mode for the past ten years. Passengers contact the DoT with issues due to lack of response or resolution with respect to a complaint, and may also approach the South African Human Rights Commission (SAHRC). The complaints listed below are a simplified version of the data submitted on the DoT reports. Complaints are given per mode of travel. Where the complaints are either frequent (ten or more) or severe (resulting in death or injury), this is likely to result in further investigation and the development of a special report. It is common practice for an NGO to make a complaint on behalf of its entire membership. In these cases, it is not possible to record the age, gender and race of all the people whom the NGO represents.

Since 2017, the DoT has held quarterly committee meetings with the disability sector through the Working Group on Accessible and Affordable ICT, to which the ICT Sub-committee on Universally Accessible Transport reports. The ICT Sub-committee was established through the Department of Telecommunications and Postal Services. The minutes of these meetings also record complaints. Although these minutes are available to the relevant branches of the DoT, NGOs and the Department of Women, Youth and People with Disabilities through the reporting on the WPRPD, the issues raised have not yet all been documented directly as complaints. The DoT is in the process of doing so.

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2009	All	M/F	All	Wheelchair users	Bus Rapid Transit (BRT)	Ramps too steep at kerbside; gap between bus and platform is far too great
2010	60+	M	W	Assistant to wife in wheelchair	Non-Motorised Transport (NMT)	(Temporary) ramp too steep; wife fell out, sustained injuries
2010	30+	M	B	Wheelchair user	Minibus taxi (MBT)	Inaccessible minibuses; fares: overcharging for alternative transport. The cost of travelling to collect the grant is equivalent to one-third of the value of the grant.
2011	30+	F	C	Blind, using white cane	BRT	Fell into gap between bus and platform
2011	40+	M	B	Mobility disability	Passenger Rail Agency of South Africa (PRASA)	Assaulted by security guards for reasons relating to disability
2011	20+	F	C	Mobility disability	PRASA	Inaccessible station/train platform
2012	20+	F	All	Pregnant women and elderly people	PRASA	Refused travel when pregnant; lack of security; no RA for passengers who are elderly or sick on long-distance journeys; no RA for people who are blind

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2012	20+	M/F	All	All/SADA	Gautrain	Rolling stock, buses and stations not accessible; no actions on audits
2013	30+	F	B	Blind/partially sighted	MBT	Failure to provide RA
2013	All	M/F	All	Blind/partially sighted	BRT/NMT	External tactile paving incorrect
2013	20+	F	W	Mobility disability	Gautrain	Lifts rendered out of services and poor customer service
2013	All	M/F	All	All/SADA	PRASA	Rolling stock on all rail inaccessible/not universally designed
2013	20+	F	W	All disabilities	Gautrain	Too far to walk, when lifts out of action, lack of RA*
2013	All	M/F	All	Wheelchair users	Bus/MBT/On-demand	No forms of transport accessible, overcharged for trips because of wheelchair carriage
2014	All	M/F	All	All	BRT	Staff have not been properly trained on providing RA for people with disabilities
2014	All	M/F	All	All	Airports	FREEMED card. Who ensures confidentiality?
2014	50+	M	W	Mobility impairment	BRT	Lack of RA; lack of customer care or information; operational problems; walking distances are too far between stations
2014	All	M/F	All	Wheelchair users/mobility disabilities	PRASA	Lack of lift access in stations; no platform; train access; poor quality surfaces; dangerous ramps;, lack of handrails at Mitchell's Plain, Lentegeur, Mandalay and Stock Road stations
2014	40+	F	W	Assisting wife, in wheelchair	Dial-a-Ride	Rude driver; lack of reasonable accommodation
2014	All	M/F	All	Tourists, incl. people with dis.	BRT	No information available on BRT services
2014	10+	M/F	All	All	Learner	No transport for learners with disabilities
2014	30+	F	I	Blind/partially sighted	Aviation	Failure to enable boarding/provide RA
2014	40+	M	W	Blind/partially sighted	Aviation	Failure to enable boarding/provide RA
2014	40+	M	W	Wheelchair users	Aviation	Failure to enable boarding/provide RA
2014	40+	F	W	Blind/partially sighted	Aviation	Failure to enable boarding/provide RA
2014	60+	M	B	Wheelchair user	Aviation	Failure to enable boarding/provide RA
2014	30+	M	B	Blind/partially sighted	Aviation	Failure to enable boarding/provide RA
2014	30+	F	C	Wheelchair user	Aviation	Failure to accommodate wheelchair
2014	60+	F	W	Wheelchair user	Aviation	Failure to accommodate wheelchair
2014	40+	M	W	Wheelchair user	Aviation	Failure to accommodate wheelchair
2014	30+	F	C	Wheelchair user	Aviation	Failure to enable boarding/provide RA
2014	30+	F	C	Blind/partially sighted	Aviation	Poor customer service
2014	40+	M	W	Wheelchair user	Aviation	Poor customer service
2014	50+	F	C	Wheelchair user	Aviation	Failure to accommodate wheelchair
2014	60+	F	W	Wheelchair user	Aviation	Wheelchair damaged on flight

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2014	50+	M	W	Deaf /hard of hearing	Aviation	Poor customer service
2014	30+	F	W	Wheelchair user	Aviation	Wheelchair damaged on flight
2014	All	M/F	All	Wheelchair user	Aviation	Poor customer service; failure to provide RA; too few accessible parking bays
2014	30+	F	W	Wheelchair user	Aviation	Failure to accommodate wheelchair
2014	40+	M	W	Wheelchair user	Aviation	Review of aviation regulations
2014	All	M/F	All	All	Aviation	No travel chain applied to aviation
2014	All	M/F	B	Wheelchair users/Mobility disabilities	Bus/MBT/Employer transport	Failure to provide accessible transport
2014	30+	F	B	Wheelchair user	MBT	Failure to provide RA
2014	40+	F	B	Blind/Partially sighted	MBT	Failure to provide RA
2014	40+	F	B	Mobility disability	Bus	Lack of RA at border post with Lesotho
2014	All	M/F	All	All	MBT	Need development of MBT vehicle
2014	All	M/F	All	All	Translux	Fare discount if you have a disability, but only available through Checkers, unable to receive it if booked through Translux
2015	All	M/F	All	Mobility disability/Wheelchair users	MBT	Failure to pick people up in wheelchairs; lack of customer care; lack of reasonable accommodation
2015	All	M/F	All	All	Bus	Only six available accessible buses; not enough, far more are needed. Service unknown to those not on Metrobus's private list. Huge unmet demand from people with disabilities. Long waiting list. Some buses have no boarding bridge. Need dignified transport
2015	All	M/F	All	All	BRT	Faulty lifts; drivers and station ambassadors need training; some bus stops not accessible. Need dignified transport.
2015	All	M/F	All	All	MBT	Need more accessible ones, even if accessed by lift/portable ramp. Kerbside boarding only needed. Need dignified transport.
2015	All	M/F	All	All	Cars	Need pick up/drop-off points; car parking bays should be policed
2015	All	M/F	All	All	PRASA	No access to rolling stock from platforms. Vertical (and horizontal) gap too great. Need dignified transport.
2015	All	M/F	All	All	Gauteng	Slippery floors
2015	20+	M	W	Wheelchair user	BRT	Lack of route available/buses not stopping
2015	30+	F	B	Wheelchair user	MBT	No accessible transport
2015	40+	M	C	Wheelchair user	MBT/NMT	No accessible transport, sidewalks or routes
2015	50+	F	B	Wheelchair user	Aviation	Failure to enable boarding/provide RA
2015	50+	F	B	Wheelchair user	Aviation	Failure to accommodate wheelchair

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2015	30+	M	W	Blind/Partially sighted	Aviation	Poor customer service. Lack of RA of guide dog
2016	All	M/F	All	All	BRT	Faulty lifts; drivers and ambassadors need training; some bus stops not accessible. Need dignified transport.
2016	All	M/F	All	All	NMT	Sidewalks not suitable, obstacles in the pathway
2016	All	M/F	All	All	Bus	Not universally designed
2016	All	M/F	All	All	PRASA	Stations and service are inaccessible
2016	All	M/F	All	Wheelchair users		Lack of dedicated car parking disc system
2016	All	M/F	All	All	MBT	Death as a result of being dropped in the middle of the road. Failure to pick up wheelchair users; lack of customer care; lack of RA; double charging for people with disabilities; cannot get in on crutches
2016	All	M/F	All	All	MBT	Why did the Taxi Recapitalisation Programme not include universally designed MBT? It was supposed to, where are they?
2016	All	M/F	All	All	Bus	Pilot project buses (in Claremont/Sekuma) which are accessible only provide one trip; no weekend service
2016	All	M/F	All	All	All	No information and communication systems that are accessible to people who are deaf or hard of hearing
2016	All	M/F	All	People with Downs Syndrome	MBT/All	Cannot travel without assistance, as it is too dangerous for people with learning difficulties, particularly with MBT
2016	All	M/F	All	All	NMT	Inaccessible public space and NMT. No tactile warning; too far, too steep to get to destination; badly positioned stops
2016	All	M/F	All	All	Legislation and policy	DoT legislation not enforced; service delivery too slow; incomplete and only in urban areas. No rural projects
2016	All	M/F	All	All	MBT	Overcharged for travel (by R10–R450); no discounts for people with families
2016	All	M/F	All	All	All	Lack of sector engagement. Lack of consultation by operators; no conditions in licences; need access audits
2016	All	M/F	All	All	All	No job opportunities. Some job adverts require the ability to drive, but many people with disabilities cannot, which is unfair
2016	All	M/F	All	All	Legislation	Transport forums inappropriate for engagement. Lack of direct government engagement.
2016	All	M/F	All	All	Bus/BRT	No boarding bridge; gap between bus and kerb – incorrect docking; unable to buy ticket, cannot get to vendor
2016	40+	M	B	Wheelchair user	Dial-a-Ride/BRT	Service not integrated; not accessible to everyone who needs it. BRT not reaching townships, where it is needed

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2016	50+	M	B	Wheelchair user	PRASA	Platform inaccessible; unable to board train
2016	10+	F	B	Wheelchair user	Learner	Scholar transport cancelled. Unable to get to school
2016	20+	M	C	Wheelchair user	Bus	Buses in bad condition; unable to board in a wheelchair. Told to use a minibus taxi, but unable to access the MBT either
2016	50+	M	B	Mobility disability	Bus	Unable to get discounted ticket due to lost medical records
2016	30+	M	B	Wheelchair user	Intercape	Rude driver, lack of RA, no accessible vehicles
2016	30+	F	B	Wheelchair	Bus	Rude driver, unable to board bus; taken to SAHRC, but not concluded
2016	30+	M	C	Mobility disability	Bus	Rude driver, Lack of RA
2016	All	M/F	All	People with epilepsy	Private car	Unfair treatment and confusing advice over the right to drive. Lack of consistency.
2016	20+	F	W	Chronic health condition	Gautrain	Lack of RA
2016	30+	M	C	Ambulant disability	Aviation	Lack of RA; refused to accommodate prosthesis
2017	All	M/F	All	People who are blind/partially sighted.	Gautrain	No accessible platform information on fare reductions. Lack of customer care, including booking online. Next stop not announced on buses; priority seats not observed. Inaccessible payment and card system. NMT outside stations is not accessible. No integrated drop-off, tactile paving incorrect, no tactile station layouts for means of escape in case of emergency. Bluetooth wayfinding needed
2017	All	M/F	All	People who are blind/partially sighted.	NMT	Road to median dangerous crossing. Need 30 km speed limit and approach to stations, and use of boarding bridge. Tactile paving and handrails incorrect. Lack of contrast on fare gates
2017	20+	M/F	B	Mobility disability/Wheelchair users	BRT	Buses not stopping to pick up passengers in wheelchairs or with ambulant disabilities. Lifts not working, boarding bridges not working, manual boarding bridges not being deployed
2017	20+	M/F	B	Mobility disability/Wheelchair users	MBT	Minibus taxis not stopping, minibus taxi drivers physically abusing passengers with disabilities
2017	All	M/F	All	Mobility disability/ Wheelchair user	Gautrain	No health and safety procedures. Lifts not always working at Marlboro station. Floors at Midrand station are not safe
2017	All	M/F	All	Mobility disability/Wheelchair user	BRT	Ramps too steep, too far to walk, no lift, uneven surfaces. Metro Centre is a particular problem
2017	All	M/F	All	Mobility disability/Wheelchair user	Metered taxi	Overcharges. No recourse
2017	All	M/F	All	Mobility disability/Wheelchair user	Car parking badges	Car parking problems, Blue Badge system is not working. Nowhere to go to complain/sort out problems

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2017	All	M/F	All	All	Car	eToll exemption given in writing, but not implemented. Exemption forms are not available
2017	All	M/F	All	Wheelchair users	Car	Abuse of car parking bay by municipal officials
2017	All	M/F	All	All	Car	Licence centres in Johannesburg are inaccessible and staff are unhelpful
2017	30+	M	W	Blind/partially sighted	NMT	Speeding vehicle hit pedestrian, saved by hanging on to the windscreen wipers
2017	40+	F	W	Wheelchair user	Gautrain	Lifts out of action at Sandton station. Doors did not open in the accessible carriage at Rhodesfield station. Driver forgot to open the train doors
2017	50+	M	W	Wheelchair user	Aviation	Poor customer service/lack of RA
2017	50+	M	W	Wheelchair user	Aviation	Removal of right to travel in aviation regulations
2017	20+	M	B	Wheelchair user	Aviation	Damage to wheelchair
2017	30+	F	B	Wheelchair user	Aviation	Refusal of service
2018	All	M/F	All	All	Car	Parking discs unavailable; assessments not carried out
2018	All	M/F	All	All	BRT/ Gautrain/PRASA/MBT	Transport is inaccessible; unable to access services/employment, lack of transformation of MBT, still inaccessible. No conditions in licences on RA. Anger at slow progress in making transport accessible
2018	All	M/F	All	All	MBT	Difficult, uncomfortable disorientating and dangerous to transfer out of the vehicle. Have to upgrade existing services, urgently. Need more information on when new services start. Need dignity.
2018	All	M/F	All	All	BRT/Bus	Inclusion of one or two spaces for people in wheelchairs on each bus is not enough; lack of real-time information and slippery floors. Poor driving leads to people falling when they alight. Too far from home to BRT station; no sidewalks or unsuitable.
2018	All	M/F	All	All	Legislation and institutional support	Anger at lack of action since Office on the Status of Disabled Persons disbanded in 2010; discomfort at the function being in DSD; lack of a rights-based approach
2018	All	M/F	All	All	BRT	Not accessible enough; not enough service;, infrastructure not accessible; poor customer care; no RA.
2018	10+	M/F	All	Blind/partially sighted	Bus, Coach MBT	Lack of RA; rude drivers
2018	60+	F	B	Wheelchair user	Ferry: Robben Island	Lack of UD and RA on the ferry to Robben Island, for his mother in law and her sister

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2018	All	M/F	All	Deaf/hard of hearing	MBT	Lack of reasonable accommodation and universal design; getting off is a particular communication problem`
2018	All	M/F	All	Deaf/hard of hearing	PRASA	Hit by trains, cannot hear them coming; problem on over-crowded stations. Cannot find correct platform or know when to get off. Need sign language interpreters on screens
2018	All	M/F	All	Deaf/hard of hearing	Gautrain	Lack of reasonable accommodation; no staff training; no visual information; unable to find correct platform
2018	All	M/F	All	Deaf/hard of hearing	Bus/BRT	Lack of reasonable accommodation, no staff training, no visual information
2018	All	M/F	All	Deaf/hard of hearing	Car	Are people who are deaf/hard of hearing entitled to a car parking disc or not? People are unable to complete the road test using a sign language interpreter when others can complete it orally.
2018	All	M/F	All	Deaf/hard of hearing	NMT	Unable to cross the road in safety
2018	All	M/F	All	Deaf/hard of hearing	Aviation	Lack of reasonable accommodation, especially for means of escape on planes; lack of reasonable accommodation throughout travel chain
2018	10+	MF	All	Blind/partially sighted	MBT	No control of informal taxi ranks outside school for the blind
2018	20+	F	B	On behalf of others	BRT	Operational issues, over-loaded buses and communication problems; lack of communication with passengers
2018	40+	M	W	On behalf of others	NMT	Incorrect layouts for tactile paving; lack of school access; dangerous intersections
2018		F	B	On behalf of others	BRT	Difficult to purchase ticket, slow; badly planned bus route; extended travel time
2018	10–60	M/F	B	Elderly people and scholars inclusive	Bus	Low service frequency; late for school/work; pay twice for same trip if it becomes necessary to use alternative transport
2018	50+	M	W	Blind/partially sighted	MBT	Illegal taxi rank
2018	20+	M	B	Wheelchair user	Aviation	Damage to wheelchair
2018	10+	F	W	Blind/Partially sighted	Aviation	Poor customer service; daughter is blind
2018	50+	F	W	Blind/Partially sighted	Aviation	Poor customer service, no access to toilet, no access to inflight entertainment
2019	All	M/F	All	Wheelchair users	Car	Concern over vehicle accident rate and driver training
2019	All	M/F	All	Wheelchair users	Aviation	Staff training and suitable customer care throughout the travel chain
2019	20+	F	B	Wheelchair user	Leaner	Too old to go to school.; transport issue was not resolved fast enough

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
2019	30+	M	B	Complaint on behalf of others	BRT	Bus overloading; unsafe passage; no ventilation
2019	50+	M	W	Complaint on behalf of others	BRT	Bus overloading; unsafe passage
2019	40+	M	B	Complaint on behalf of others	BRT	Overloading since January 2019; poor customer service; no information; elderly people forced to stand; learners are late for school
2019	30+	F	W	Mobility disability	Quality Bus Service	Failure to deploy ramps
2019	30+	F	C	Blind/partially sighted	BRT	Physical injury due to bus not using boarding bridge
2019	50+	M	C	Wheelchair user	MBT/NMT	No accessible transport; cannot move anywhere
2019	30+	M	B	Blind/partially sighted	MBT	Intimidation and extortion
2019	50+	M	W	Blind/partially sighted	Car	Road rage and abuse
2019	50+	M	B	Blind/partially sighted	NMT/MBT	Run over, died
2019	20+	F	B	Wheelchair users	Learner transport	Lack of accessible bus provision
2019	60+	M	W	Blind/partially sighted	QBS	Refused service
2019	All	M/F	All	All disabilities	Legislation	Apparent proposal removing the equal right to transport in the NLTA (RSA, 2016)
2019	20+	M	B	People in wheelchairs	NMT/precinct	Non-compliance with standards; dangerous intersection; uncontrolled public transport
2019	50+	F	W	Wheelchair user/all disabilities	NMT/precinct	Non-compliance with standards
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	Wheelchair users	Dial-a-Ride	Removal of service
2019	All	M/F	All	All	All modes	White Cane Day/Accessible Transport, October Transport Month – awareness raising on the barriers to transport
2019	40+	M/F	W	Mobility disability	BRT	The ramps of the buses are not released, especially at Wonderboom Hector Pieterson drop off
2019	All	M/F	B	Wheelchair users/Mobility disabilities	NMT	Lack of safe pedestrian facilities in rural village, dangerous high-speed road
2019	50+	M	C	Wheelchair user	MBT/NMT	No accessible transport, cannot move anywhere. Complained in 2015 and 2019. Took complaint to the South African Human Rights Commission
2019	All	F	All	Women (and vulnerable groups)	Rail/Bus/NMT/ MBT	Submission to Parliament: crime, assault, death, gender-based violence,

Year	Age	M/F	R	Access need	Mode	Problem identified/reported requiring investigation
						sexual harassment, catcalling, crime, petty theft
2019	60+	F	B	Wheelchair user	Aviation	Lack of RA
2019	All	M/F	All	Blind/Partially sighted	Aviation	Problems with self-service kiosks; lack of accommodation of guide dogs; lack of accessible inflight entertainment systems and websites
2019	All	M/F	All	Blind/Partially sighted	Car/NMT	Electronic cars/hybrid cars cannot be heard by people who are blind – need to make a noise
2019	All	M/F	All	All	On-demand	On-demand services are not accessible to everyone at an affordable price
2020	All	F	All	Women (and vulnerable groups)	Rail/Bus/NMT/ MBT	Submission of reports with complaints from women and girls about gender-based violence on all forms of commuter transport
2020	10+	M	W	For children with disabilities	NMT/precinct	Lack of access to school; no safe NMT; MBT information taxi rank creating a danger to the children
2020	50+	M	B	Blind /partially sighted	NMT	Poor NMT, uncontrolled driver behaviour causing the death of pedestrians
2020	10+	M/F	All	Blind /partially sighted	NMT	Poor NMT, uncontrolled driver behaviour causing the death of pedestrians
2020	All	M/F	All	All	All	Webinar: poor public transport coverage for COVID-19 response
2020	30+	M	W	Blind /Partially sighted	NMT	Almost run over by aggressive driver following COVID-19 outbreak lockdown

Group complaints requiring/having received further investigation				
Year	**Mode**	**Affected group**	**Reason**	**Outcome**
2016	Minibus taxi and NMT	Passengers who are blind/partially sighted	Killed by minibus taxi operational standards: dropped in the middle of the road and run over	Report concluded, requires follow up
2016	Bus	Passengers in wheelchairs	Case taken to the SAHRC, bus company refused to make service accessible; consequences for all operators on legal compliance	Report concluded, SAHRC investigations not concluded
2017	MBT	Women	Rape and abuse when using minibus taxi services	Report concluded, requires follow up
2015–2019	MBT	Passengers in wheelchairs, Passengers with disabilities	Lack of universally designed MBT, lack of accessible services	Report underway, not concluded
2016–2019	Gautrain and PRASA services	Passengers with disabilities	Lack of reasonable accommodation, and standards non-compliance	Report proposed, requires further investigation
2017	Learner	All children with severe disabilities	Lack of available services, extreme distances travelled on available services resulting in loss of school attendance, possible cases of child rape	Report proposed, for further investigation

2018	Aviation	Passengers with disabilities	Cases reflecting problems with the entire range of aviation services	Report partially concluded, requires further investigation
2018–2020	Private vehicle	Passengers with disabilities	Lack of RA in licence testing centres, lack of ability to adopt a centralised parking disc programme, and abuse of car parking bays	Report proposed, requires further investigation
2019–2020	Minibus taxi and NMT	Passengers who are blind/partially sighted	A significant number of adults and children who are blind or partially sighted are run over when walking, or in danger of this happening due to poor driving or vehicles on the sidewalk	Report proposed, for further investigation
2019	Dial-a-Ride	Wheelchair users	Refusal of service to employment and education	Report not concluded, requires further investigation
2019	BRT	Passengers with disabilities	Failure to deploy boarding bridge and properly align vehicle to infrastructure causing injury	Report proposed, for further investigation
2019	Learner	All children with severe disabilities	Child rape and vehicle overcrowding	Report not concluded, requires further investigation
2019	Rail and minibus	Passengers with disabilities, and women	Abuse, lack of security, rape and murder	Report provided by Sonke Gender Justice requires escalation
Source: UDA				