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OCCASIONAL PAPER 05

The map of Gauteng: evolution of a city-region in concept and plan

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July 2013

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Acknowledgments

I have collected material used in this paper over some decades. Previous short accounts appear in Mabin and Smit (1997) and in PWV Forum (Mabin and Hunter, 1995). An early version was presented verbally, with images, to a seminar on city-regions at Wits in October 2009. Memory and history of city-regions forms part of a major current project of mine, which has been supported among others by Oppenheimer Memorial Trust 2010-11. But support for writing a fuller piece on past concepts of Gauteng came from the GCRO during 2011-12. Thanks to GCRO and its main funder, the Gauteng Provincial Government, for support. And thanks to numerous archivists, librarians, interviewees, seminar participants and others for help, direction and critique. A few names must be mentioned who've contributed mightily over many years, directly or indirectly: the late Denis Fair, Roland Hunter, Jean-Louis Cohen, Graeme Gotz, Moses Metileni, Margot Rubin, Sophie Motsewabone, Mercy Kgarume. Of course responsibility for the gaps and inaccuracies is mine alone.

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The views or opinions presented in this document are solely those of the author/s and do not necessarily represent those of the Gauteng City-Region Observatory or any of its partners.

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The mission of the Gauteng City-Region Observatory (GCRO) is to help illuminate trends and dynamics shaping the region of towns and cities in and around Gauteng, and also enhance understanding of the idea of the Gauteng City-Region (GCR) as a project – a different way of thinking about and governing this space. While much of the data collection and analysis work of the GCRO is focused on the present, we also consider the city-region's past and its possible futures.

A 2030 National Development Plan, crafted by the National Planning Commission, has recently been adopted. In addition the Gauteng Provincial Government, working with municipal partners and business, civil society and labour stakeholders, is drafting a G2055 long-term development plan. As our society looks forward to what sort of country and region we need to become, it is also important to look backward. Understanding the past gives us insights into how we have come to be where we are now, and so in turn what paths we should tread into the future.

This Occasional Paper is one of two that GCRO has commissioned specifically to deepen our understanding of the past of the GCR. Both focus on aspects of the region's spatial past, and ought to be read together. This paper by Alan Mabin explores how the idea of a city-region found expression in various statutory planning frameworks over the course of the last century, and how embryonic city-region concepts influenced spatial decisions and developments. The companion paper by Brian Mubiwa and Harold Annegarn considers the different but related issue of the actual historical spatial evolution of the GCR. It examines key spatial changes that have shaped the region over a century and provides a remarkable picture, based on satellite imagery, of regional spatial growth in the last two decades.

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A timeline of changing conceptions of Gauteng

Period	Approximate dates	Key features
Emergence of an urban region	1904-1939	First conceptions, water supply, town planning
Modernising the southern Transvaal	1930-1959	Industry, townships and comprehensive segregation
Managing the PWV	1960-1980	Freeways, guide plans and control
Late apartheid PWV space	1976-1989	Challenge, spatial strategy and flux
Negotiating future PWV	1988-1995	Reconceptualising, transport continuities
Post-apartheid Gauteng	1994-2004	Search for an approach, rupture and continuity

1. Introduction - what this essay is about

Traveling every day from New Era station, Springs, to central Johannesburg with a walk to work at the end of the train trip: at least one hour and 20 minutes … and back. What does Gauteng's geography look like to a librarian who commutes thus? Probably not quite the same as for someone who drives from Mapobane to a civil service job in central Pretoria every day; nor to commuters on Gautrain, taxi passengers from Tshiawelo to Sandton, job seekers trudging from Sharpeville to Vereeniging or Kagiso to Krugersdorp. Yet none of these movements makes complete sense without all of the others. Soweto is not conceivable without Joburg, nor the reverse. Pretoria and Johannesburg are symbiotic partners with constant movement between them. Each element can be seen as part of something larger. All are part of a large and very complex city-region with multiple centres, diverse landscapes, and constant change. It is challenging to get a handle on Gauteng as a space, a region, a place – even the words create some difficulties.

This essay portrays when, how and why a particular region appeared in various planning discussions and documents at different times over the last century. It tells a story of diverse concepts of a city-region at the scale today more generally known as the 'Gauteng City-Region' (GCR).

For many of us today, imagining the people and agencies involved in spatial planning and analysis in the past is difficult. Right through the twentieth century, the area now thought of as the Gauteng City-Region fell into a much larger former unit, the Transvaal province (succeeding the Transvaal colony from 1910). Municipalities did not cover that territory as they do today – areas like today's Midrand were outside municipal boundaries. The population was tiny for most of this time, by comparison with today's: fifty years ago, fewer than 3 million (URRU, 1973. table 5) were to be found in the 'Southern Transvaal' – about a quarter of today's GCR total.

It is not, and has not been in the past, equally obvious to all that Gauteng's area can be conceptualised as a single city-region. When the South African Cities Network's first State of the Cities Report (2004) noted that Gauteng is 'a continuous polycentric urban region [that] will soon be equivalent to some of the largest cities in the world' (SACN, 2004. p. 167), the notion of the Gauteng City-Region was just starting to gel and to inform the thinking of the provincial government and other actors. Ways in which conceptions of Gauteng have been formulated since then will be the subject of other work at the GCRO. The present paper surveys concepts of Gauteng over the century from the first regional scale body in 1904 to the end of the first decade of democratic provincial government. The account details many diverse approaches over time but cannot, of course, pretend to be fully comprehensive. Amongst other things it concentrates on *professional* and occasionally *political* perspectives on the space of Gauteng: and of course, there are always potentially millions of others in the minds and conversations of citizens.

What is the space of Gauteng's city-region? How big is it, where are its boundaries? Over the decades several previous terms were used for the idea of an area approximating GCR today – the two most frequent being 'Southern Transvaal' and 'PWV'. Those names, of course, appear here in quotations from documents produced through the decades; and they are used in the text to distinguish historical periods from one another; and from today's circumstances. Readers will find that the present day acronym 'GCR'

is used in this paper for simplicity and consistency, to cover the region stretching from somewhere north of Pretoria to the Vaal River (and sometimes beyond); and from east of Springs to west of Krugersdorp.

Given that this report seeks to provide a historical road map, it depends on a periodisation, which in turn forms the skeleton of the paper. The periods identified overlap with each other and the paper shows how themes which developed in one era flourished in the next only to wither and give way to new ideas in time. Obviously, the national political and economic context played a very large role in shaping perceptions of and actions in Gauteng, but city-regions also have their own momentum. Subsequent sections address in turn:

- Pretoria, the Witwatersrand and emergence of an urban region
- Modernising the Southern Transvaal: comprehensive segregation from the thirties to the 1950s
- Managing the PWV from crisis through stability to challenge: 60s to 80s
- Space and crisis in the 80s
- Grappling with change from negotiation to democracy – 80s to early 2000s.

Each section of the paper contains a review of spatial development in relation to political, economic and social change during the relevant period. The sections focus on analysing planning documents of each period.

The argument of the paper is that, like those of city-regions elsewhere, conceptions of the GCR have shifted and been contested because of social, economic and spatial change in the region; because of contest over ways of thinking about the region for various purposes; and due to fashion in discourses of geographical space and planning. Concepts of GCR remain contested – probably they will always be so. The underlying reason for this state of affairs is that the concept of space, of spatial change, and of spatial planning are themselves somewhat slippery and always in debate. A few words on that subject make a useful point of departure for the investigation.

Different ways of thinking about the GCR are possible. From a housing perspective, what would a specialist say about the nature of the region through time? Similarly there could be economic perspectives, or more recently perhaps an ecological perspective. Rather than shelter, incomes or durability, the major concept in this essay is *space*. In this context the word 'space' is not related to satellites, stars and planets – undoubtedly its more frequent English usage. The word is used in relation to the human geography of an extent of territory. This notion of space is expressed most frequently in phrases such as *spatial form*, *spatial change* and *spatial planning*. There is nothing precisely fixed about these terms – indeed, there are differences of conception of space over time and between diverse people. Space is an inherently political concept as illustrated by frequent eruptions in South Africa over ideas of 'empty space' and 'occupied space' in the peopling of the country over several centuries. Spatial planning can mean a general activity carried on particularly by government agencies in an attempt to shape the *where* of both public and private sector investment. From time to time it is used as a means – not necessarily successfully – to coordinate government actions across different sectors and scales. And certain sectors unavoidably make their plans in spatial form: this is typical of engineering services, and especially true of transport planning. Which types of spatial planning prove most influential on perceptions and effective on the ground depends on a host of factors.

The essential thoughts introduced by the word 'space' concern the notion that place and geographical position are always relative. 'To speak of "producing space" sounds bizarre', wrote French sociologist

and philosopher Henri Lefebvre, 'so great is the sway still held by the idea that empty space is prior to whatever ends up filling it' (1991. p. 15). The broad conception of space here follows Lefebvre, indicating 'the totality of landscape elements, i.e. the system ... a conception of geographical space as the space [of] qualities in relations and proportions' (Mazúr and Urbánek, 1983. p. 139).

There is substantial convergence around this understanding of space. And there is further convergence of debate around the interrelationship of society and space: the understanding here is thus that 'both the conceptual and material dimensions of space as well as of built forms and landscape characteristics are central to the production (and reproduction) of social life' (Low and Lawrence-Zúñiga, 2003. cover). Following these lines of thought, in this paper 'space' is conceptualised as elastic rather than a fixed container. The elasticity comes from constantly changing – sometimes rapidly changing – relationships between different locales. At minimum, transport routes and technologies make this point. The ways people think about space change accordingly. Notions of proximity, accessibility, centrality, peripherality, undergo constant change.

A contemporary example is the way in which Gautrain is changing many people's concept of geography – perhaps making Sandton far more 'central' and bringing other places (and the people and activities there) into new and different relationships with one another mediated partly by time, partly by knowledge. The rise of collective taxi transport over the past generation is perhaps a more complex example, but probably much more important. It also shows that spatial change is far from always regulated by the state.

Literatures and discourses of space and spatial planning often engage with particular attributes – density being a key concept. Like other aspects of discussion and perception of space, density is relative. One planner's notion of congestion (density being too high) is another's dream of intensity supporting a complex and vibrant urban life. Indeed, planning as a global discipline has passed through a century of seeking first to decongest, later to manage densities, to the present popularity of increasing densities. Concepts and representations of city-regions like Gauteng have hardly been immune from such changing fashions and both description and normative ideas show inflections along these lines. In other words there is always a contest around perception, description and prescription for space, and at times that contest is intensely politicised, not merely a professional debate.

The physical geography of Gauteng's region remains, it seems, very stable – except for the consequences of some human interventions (such as collapsing sinkholes on dolomite, acid mine water entering where it is not wanted, or wetlands drained for building with nasty consequences). Major natural disasters are uncommon – earthquakes, volcanoes, tsunamis seem exotic in the tranquil nature of Gauteng. To some extent nature has provided a stable landscape for human settlement. But human settlement has fundamentally altered the space we call Gauteng – and continues to do so. How authorities and professionals have described, understood and represented the space of the Gauteng City-Region has thus changed substantially – and been contested – through time.

In setting out the complexity and contest of conceptions of space and of spaces, Thrift (2003. p. 101) asked: 'Caught in a snowstorm of images, why do we attend to some images rather than others?' This paper, through its periodisation and subsequent sections, seeks to explain why 'some images rather than others' have predominated in a century of past conceptions of what is, today, the Gauteng City-Region.

2. The Witwatersrand, Pretoria and the emergence of an urban region before the Second World War

2.1 The site, situation and urbanization

Preserved by the accidents of geology and revealed by mining and quarrying, evidence of hominid habitation stretches back millions of years in the sets of ridges and valleys which form the central physical features of Gauteng. This is indeed one of the cradles of humankind. Shortening the timescale radically, a thousand years of settlement is evident where Johannesburg, Pretoria and their urban surrounds now accommodate more than 10 million people. The characteristic ridges form the outcrops of rocks which supplied iron to village craftspeople over several centuries; and which came to wider prominence when the gold finely distributed in some of their layers was found in the 1880s. Waterfalls cascade from the high ground, leading nineteenth century Dutch speaking travellers to name the ridges for the white waters they saw from horseback and ox wagon. Thus emerged a first common name for the area which forms central Gauteng today – Witwatersrandt (ridge of white waters).

Settlement in the region of course long predated the arrival of Dutch speakers. Some groups (which might be described as chiefdoms) occupied substantial areas: Mogale's domain at times stretched from north of the eponymous mountains (Magaliesberg) south to the Witwatersrand and is celebrated today in the name of Mogale City municipality. Nonetheless, land was effectively taken into the control of the Dutch speaking settlers through most of the region by the middle of the nineteenth century, and descendants of those who had been present much earlier on, found themselves confined to more remote areas and often pressed into service as labour tenants and wage workers. Like so many other parts of the country, this meant displacement of people who found themselves living on land which come to belong to others, backed by a system of survey, registration and forceful authority. Much remains to be researched and written on these earlier forms of settlement and society in the region.

The Dutch speaking settlers established churches around which towns developed, a capital (Pretoria, 1855) and built rough roads between the towns. Routes such as those from Heidelberg (established 1861) to Pretoria, Pretoria to Potchefstroom (1838), and Rustenburg (1851) to Heidelberg still have traces in the Gauteng landscape today – respectively the R23 through Ekurhuleni, the N14 or more accurately the R114, and Rustenburg Road in the heart of Johannesburg, its route predating the city itself by some decades. The wealth of the republican government in Pretoria was distinctly limited, but grew steadily through the 1870s: businesses such as banking expanded in the towns, fed by mining at a distance, agriculture more locally, and investment from other centres such as Cape Town and even Europe. After the first Anglo-Boer War (1880-81), investment continued, government in Pretoria was better established and began to discuss railway connections to other territories: railways from the coast had reached Kimberley, some 450 kilometres from Johannesburg, in 1885. But this was still a backwater in world terms – not yet firmly on the map of capitalism.

In less than twenty years, the arrival of colonial capitalism utterly transformed this region now known as Gauteng. A population of only a few thousand at most, became a warren of profit making, hard labour, and

fluid society. Industrialised mining underlay towns tightly linked by railway and road and by powerful forces of conflict (the best description remains Van Onselen, 2001). The world's top gold producing area fortuitously held other minerals too, most notably coal, mined in Boksburg and further east from soon after gold mining began, as well as at Vereeniging where the railway to Cape ports crossed the Vaal in 1892. Coal supplied rapidly growing manufacturing industries, in some cases promoted by government, and protected by distance, cost and import tariffs from external competition. The Witwatersrand and its surrounds had become a space of international focus: randlords contesting the nature of the republic watched closely by a royal empire – not to mention both investors and criminals around the world – with little heed paid to those conducting their affairs in more traditional African ways.

The forts built around Pretoria and at Johannesburg in the 1890s indicate the expectation of war and invading armies. When the armies arrived in 1900, little destruction took place within or around the urban places – yet the major Anglo-Boer war caused immense destruction in other parts of the country, propelling many thousands towards cities, and resulting in an entirely new form of government in the Transvaal. This was the large colony, set in the context of British South Africa, of course including the Witwatersrand, Pretoria and Vereeniging at its southern side. Its government, initially located in Johannesburg in the heartland of the randlords, decided on Pretoria as its capital – not an automatic choice and perhaps a gesture to inclusivity at least of the defeated Boers. The colonial administration developed all sorts of new powers – perhaps best seen in a uniform 'native affairs' policy from 1904 onwards, and in a new local government system.

Creation of municipalities including that of Johannesburg (1904) meant attention being paid to many critical urban issues. Government's approach was noted by Lionel Curtis (who brought considerable knowledge of local government restructuring in greater London to Milner's government in the Transvaal: cf. Parnell and Mabin, 1995). The Witwatersrand, he said whilst chairing the Johannesburg Roads Commission of 1905, was 'in fact like one great township' (Transvaal Colony, 1905. para 11).

The scale of some urban problems required regulation at regional and municipal levels. Not least was water supply – something no local authority could solve on its own. And indeed, an area larger than the Witwatersrand needed to be addressed as one for this purpose. Thus as early as 1902 the Transvaal government initiated the Rand Water Board, a body bringing together nascent municipalities from the Vaal River to Pretoria as well as gold mine companies, and responsible for planning and managing water supply across the region. This was the first body which proactively undertook planning at the regional scale – often in negotiation with other bodies, and surviving as a sectoral agency for more than the past century (named Rand Water today).

With half a century's hindsight, two prominent planners later wrote 'Thus, as early as 1896 the broad framework of the present settlement pattern (Fig. 2) was clearly established. **The polynuclear structure, the east-west mining axis and the north-south communications axis had emerged** [emphasis added]. The sum of these factors had produced the now clearly-defined cruciform nature of the structure built around these two dominant axes.' (Fair and Mallows, 1959. p. 130). And the consolidation of a South African state, first under British authority 1904-1910 and then under the Union of South Africa, meant prospects of rapid further economic development – with its urban consequences for the region around the Witwatersrand and Pretoria.

Fortuitous proximity of three elements – the growing capital at Pretoria; the mines along the reef only 60 or so kilometres to the south; and the Vaal River a further 60 kilometers from there – made it possible to develop a concept of a single region. At the start of the twentieth century only the Rand Water Board

carried forward material action based on that perception. Yet the concept began to play an occasional role in official and other action and behaviour. How that worked out over the decades, is the subject of subsequent sections.

2.2 Planning in the urban region before the Second World War

At the start of the twentieth century, railways connected Springs to Randfontein with frequent services, as well as Johannesburg to Pretoria and to Vereeniging. As the region's geography became more complex, boundaries between municipalities disappeared under continuous building all along the Witwatersrand. Worker organisation linked mines and factories across the region. Major events – especially the Rand Revolt of 1922 – led all manner of actors to conceptualise the region more holistically – not least the air force and army called in mostly from Pretoria, to put down the revolt. Enormous challenges faced public authorities – such as the flu epidemic of 1918-19 leading to reorganisation of public health, and the passage of the Housing Act in 1920 (Mabin and Smit, 1997). Municipalities began to be tied into a state-centred system of pursuing urban development, symbolised and characterised by their implementation of the Natives (Urban Areas) Act of 1923 (Parnell, 2002). It had actually taken government over a decade to enact this legislation, an indication of the difficulties, lack of resources and complications of the first world war and other events.

Furthermore, national Government changed politically after the election of 1924 with significant reorientations (of housing policy for example) following. From 1914 through to the thirties the Transvaal provincial government was frequently embroiled in political deadlock and it, too, did not devote much attention, it appears, to its burgeoning city-region until after 1931. Major questions such as public housing, slums, unemployment, welfare and transport were left largely to individual municipalities, with national government in an oversight role. Appeals for coordinated approaches to the issues tended to emphasise the unity of the Witwatersrand more than that zone's setting in the region more generally. Thus EH Waugh, City Engineer of Johannesburg, noted that 'Pretoria … [is] detached in distance and [does] not fall to be embraced in a joint committee of Reef Local Authorities …'.[1]

But there were people eager to advance a conception of the region as a whole. One was the Administrator of the Transvaal, occupying a position vaguely similar to that of Premier today. He recognised two concepts of the region: 'the Reef municipalities' with a population of 686 000 people, and 'the Rand Water Board area' with a population of 726 000 or more. It was the latter which he compared with 'regional movements' elsewhere in the world, mentioning the Greater Ruhr, London, Manchester, Glasgow and Greater Birmingham. He pointed to the then 'huge scheme for New York' (the New York Regional Planning Association's work) including 400 municipalities – and remarked 'it has been found to be essential to their future well-being and continued prosperity to plan on a large and comprehensive scale …' 'Help me to make a success of the existing provisions of the law and the ideal of Regional Planning will then become practical politics', he concluded on 2 February 1933 (Administrator, 1933 pp. 35, 34, 38).

The context in which these remarks were made was in one of the few region-wide bodies of the period before the Second World War. The passage of the Transvaal Townships and Town Planning Ordinance in 1931 and enthusiasm from the Johannesburg City Engineer's Department and the Administrator of the Transvaal led to the establishment of a Witwatersrand and Pretoria Joint Town Planning Committee

[1] p. 5 in 'Memorandum … consideration of the advisability or otherwise of a joint committee or other joint action', Conference on Town Planning convened by … the Mayor of Johannesburg, 27.06.1932 in Transvaal Archives, MGT 247 Germiston Town Council 92(2) Witwatersrand Joint Town Planning Committee.

(WJTPC), which included not only all the then-existing local authorities on the Witwatersrand but also Pretoria and Vereeniging (a proposal to include Potchefstroom had been dropped). However, the planning conducted for this committee – mostly towards town planning schemes – seldom extended to discussion of the entire area from Pretoria to the Vaal River. Whilst there was some thinking about the whole region, there was frequent conflict over the meaning of 'the regional plan': thus when the Transvaal Townships Board continued to approve new major subdivisions against the advice of the WJTPC based on its conception of regional development, the Townships Board was defended by the Administrator.[2] Even on the Witwatersrand, where some real attempts were made to coordinate planning, the actual work deteriorated into preparation of individual town planning schemes for each local authority: not even rapid industrialisation and urbanisation, including growth of informal settlement, of the later thirties and forties led to broader approaches to the problems and opportunities of the area (Mabin, 1993b).

The WJTPC revealed two tensions in spatial conception – one contrasting the individual municipality view with a view of the greater whole, whatever than might cover; and a second between those who saw the Witwatersrand as a metropolitan area or conurbation, and those who included Pretoria and Vereeniging as well as the Witwatersrand in their perceptions of the region and its planning. These tensions had normative as well as analytical dimensions. When PJ Bowling became the central figure in WJTPC planning in the later thirties, his normative view was succinctly expressed in a memo of 1939: 'towns may be in close proximity to one another – as on the Witwatersrand – but they should not be allowed to coalesce, but should each preserve its separate entity and character'. Writing about areas outside municipalities, he thought as they developed they should become independent municipalities rather than the 'nightmare … of a Greater Johannesburg'.[3]

Yet this insistence on planning as an activity best carried out by municipalities with some coordination between them was already being undermined by social and economic, as well as real spatial, changes in the interlinked region stretching from north of Pretoria to the Vaal. Simple coordination among local authorities would rapidly be eclipsed in its impress as national government developed first ad hoc and then more comprehensive spatial responses to the emerging city-region. That is the subject of the next section of the paper.

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[2] Minutes of meeting of WJTPC 27.09.1934, report of meeting between Administrator and several councillors and officials from Johannesburg and other municipalities, 04.09.1934 – in TA, MGT 250, 92 (1) Vol 1 WJTPC minutes 1933-34.

[3] PJ Bowling, Report – Development of Land Outside the Municipal Areas, para 49 and 51, with WJTPC agenda for 19.01.1939 in TA, MGT 251, 92/1 Min vol 6 1939-41.

3. Modernising the Southern Transvaal: comprehensive segregation from the thirties to the fifties

3.1 Industrialising society, unplanned space 1930s-1940s

'The Southern Transvaal', a relatively vague expression of the time, hosted secondary, manufacturing industries from its earliest years, from an infamous distillery at Eerste Fabrieken east of Pretoria to Union Steel Corporation in Vereeniging, with some concentrations in Johannesburg, Germiston and elsewhere. Industry grew rapidly both from private investment and via public initiative, so that before the great depression of the early 1930s industrial areas became common – mostly not very far from the mines – with the biggest single site perhaps being that of ISCOR in Pretoria. Social change reflected industrial development: mine compounds housed a decreasing proportion of the population, a black working class grew steadily, public housing estates began to assume large proportions (Orlando, planned for 30 000 houses, emerged from this era along with many other projects). Railway lines were doubled or quadrupled, and electrified. Some main roads were hard surfaced for the first time. Suburban areas began to grow more rapidly away from mines, railways and existing major roads to the northwest of Johannesburg's core, to the north of Benoni, the south of Germiston and Springs, the north and south east of Pretoria. Private owners demonstrated their modernity as they moved from art deco buildings to the 'international style'. In short, the region's society and landscape began to resemble an urban industrial area.

Occasional recognition of this region as one urban phenomenon did surface as shown above. A further example can be found in the railways administration's timetables for the whole 'interurban system' from north of Pretoria to Vereeniging. Thus one major public actor certainly had a concept of a single region. But in general, it would be a stretch to say that concept was widely shared.

During the later 1930s and the second world war (1939-45), migration increased from the countryside, and as the country sent major forces to war and experienced severe shortages of previously imported items, the state played an even stronger role in the economy. Industry grew rapidly especially along the Witwatersrand, sometimes directly fostered by government – as with KOP next to Modderfontein. A critical growing problem in Johannesburg, Pretoria and the other towns during the war was the extreme shortage of housing, accompanied by burgeoning 'squatting'. Informal housing proliferated around the cities. In the closing years of the war up to 1945, and immediately after, national government set up numerous new bodies to study problems, conduct research and propose solutions.: a Social and Economic Planning Council, for example, produced numerous reports and proposals for post-war 'reconstruction'. Most of its ideas involved new ways of planning space. Its fifth report, on 'Regional and Town Planning', published in 1944, drew together a number of the threads stressed here: urbanisation, planning and segregation (Mabin and Smit, 1997). Amongst other things it recommended a national planning ministry, which did not happen. However, with the development of the Free State goldfields and other new mining

regions after the war, these recommendations were translated into the Natural Resources Development Council (NRDC), created in 1947 (Mabin and Smit 1997, p. 205).

But comprehensive solutions eluded the government of the time. *Ad hoc* measures proliferated. Examples include housing experiments still evident in the curved concrete roof 'elephant houses' of Orlando West and Jabavu; legislation and a 'land tenure advisory board' (LTAB) to attempt to limit property purchases by Indians; and Transvaal province's Peri-Urban Areas Board to handle services in urban spaces outside existing municipal boundaries (in the long era when most areas were not within municipalities). Massive strike action in 1946 and widespread protests went alongside deep tensions and divisions between sections of business and government. Yet all parties cried out for modernisation, with a sense of powerful and comprehensive approaches implicit. This was the context in which the National Party of DF Malan developed its apartheid manifesto, and just managed to win the white election of 1948 – taking control of the Transvaal provincial legislature the following year with a one-seat majority.

Whoever had come to power at that time would have confronted urgent issues. The difference between the NP and its competitors was that it had a clear idea of what it wanted to do even if it had not addressed the details. It set out to deepen the segregation of the society, and take sweeping measures to do so. A major reorganisation of space was part and parcel of this general policy. The Southern Transvaal formed the primary arena of developing spatial planning in this context.

As it started to develop its programme the new government mostly made use of the *ad hoc* instruments already available from the preceding regime. Attention now turns in this paper to spatial planning implications and perspectives affecting the Southern Transvaal during this period. The LTAB, NRDC and other bodies were pressed into service, and only once the major planks of comprehensive segregation had been laid during the fifties, did government turn – in a greatly changed economic and political context – to creating new spatial planning instruments and policies, which forms the focus of section 4 below.

3.2 Locating townships and creating group areas in the Southern Transvaal

In March 1947, at a meeting in Krugersdorp of local authorities from Pretoria, the Witwatersrand and Vereeniging, the United Party Minister of Health and Housing , Dr H. Gluckman (MP for Yeoville), 'suggested that economically, geographically and politically ***the Reef (including Vereeniging and Pretoria) should be treated as a "whole"*** [emphasis added], that a 'Witwatersrand Regional Committee' should be established with representatives from each Municipality and from the Union Health and Native Affairs Departments and from the Provincial Administration. Such a committee …. might well consider the whole question of Non-European Housing on the Witwatersrand.' The meeting agreed, recommended the idea to its principals, and in May 1947 the 'Witwatersrand Advisory Council for Non-European Housing' was duly established. Its members were drawn from the entire region as it then existed, including Pretoria and Vereeniging.

This new regional scale spatial planning body was built around an issue which would rapidly become a key to the spatial reorganisation of the city-region: whether or not new African townships should be grouped together as large 'satellite towns', to be jointly developed by existing local authorities and government departments. The issue was controversial, suspended between the *ad hoc* and the comprehensive, and

no agreement could be reached in deliberations. With the installation of a new government in May 1948, the Council fell away – though its concerns persisted. They were picked up by the Department of Native Affairs after 1948, and their impact is examined below. The *leitmotiv* of Southern Transvaal spatial planning in the period rapidly became *comprehensive segregation of an industrialising urban region*. Thus began four decades of attempts to shape the city-region around the 'race' of who had access to which space.

In one critical step the already existing LTAB had its powers widened by the Group Areas Act of 1950, and under a new chairperson (DS van der Merwe) set out to implement the Act (Mabin, 1992). Its primary perspective was to declare which areas would be 'white'. The task was taken on by 'subsidiary planning committees' which addressed sections of the wider region – Pretoria, Johannesburg, the East Rand, etc. These committees were supported by, among others, the staff of the NRDC, and as a result as they planned the location of racially defined areas tended to take a wide regional view (Fair, 1991). The consequence was *limited* numbers of coloured and Indian group areas being established within large subregions such as the East Rand (Reiger Park, Actonville, Bakerton), and forced removal over subsequent decades of many deemed Indian or coloured from older neighbourhoods (Nieftagodien, 2001).

It seems clear that the dominant spatial perspective of those in power as well as those in property development was that most areas of the Southern Transvaal would be reserved for white ownership and (supposedly) occupation. New suburbs boomed during the period, many if not most outside municipal boundaries, which covered only a fraction of the wider region at the time. As long as these areas were aimed at sales to white purchasers, they were relatively little impeded. Zones such as Bryanston, approved by the provincial Townships Board without reference to nearby Johannesburg, fell into the jurisdiction of the (provincial) Peri-Urban Areas Board. Not surprisingly, Johannesburg found the rule of such boards annoying, since it did nothing to slow the pace of northern expansion beyond the city's area, which the former saw as adding to its costs – for example in roads and some services – without benefits in rates income (Transvaal Province, 1952). Municipal complaints included the lack of regional vision on the part of the provincial bodies.

If group areas for coloureds and Indians had long term effects on spatial form, not to mention reservation of huge swaths of land for white ownership, despite the lack of a strong regional plan, the formation of a regional plan for segregated black townships was perhaps the prime spatial impress of the era. The national Department of Native Affairs appointed two committees in 1950 to recommend new areas for large segregated public housing schemes around Pretoria in the first instance, and between the Witwatersrand and the Vaal river in the second (Mabin, 1993a). The areas determined by these committees became the African townships of Mamelodi, greater Soweto, Tembisa, Sebokeng, KwaThema and others; it may safely be said that this process was the dominant approach of the time to 'regional planning' for a region seen to be a single urban whole, and its apartheid intent has had a profound impact upon the structure, functioning and perception of the region ever since.

'The geography of African residential settlement in the PWV region owes much to the proposals of the Mentz Committee report 2 … which planned the location of African townships in the region' (Hendler, 1992). For example, 'within the East Rand residential development for Africans was concentrated in three sub-regions: first the area south of Natalspruit (where the townships Thokoza and Vosloorus were established in 1957 and 1963) second, the area south of KwaThema (where Tsakane and Duduza were built …), and third, an area in the north-eastern corner of the Benoni magisterial district (including land

on which in I955 Daveyton was laid out) … The spaces between Katlehong, Thokoza and Vosloorus, and KwaThema, Tsakane and Duduza, as well as that to the north-east of Daveyton were noted by the committee as 'natural expansion' areas for future developments' (Hendler, 1992. pp. 42-43).

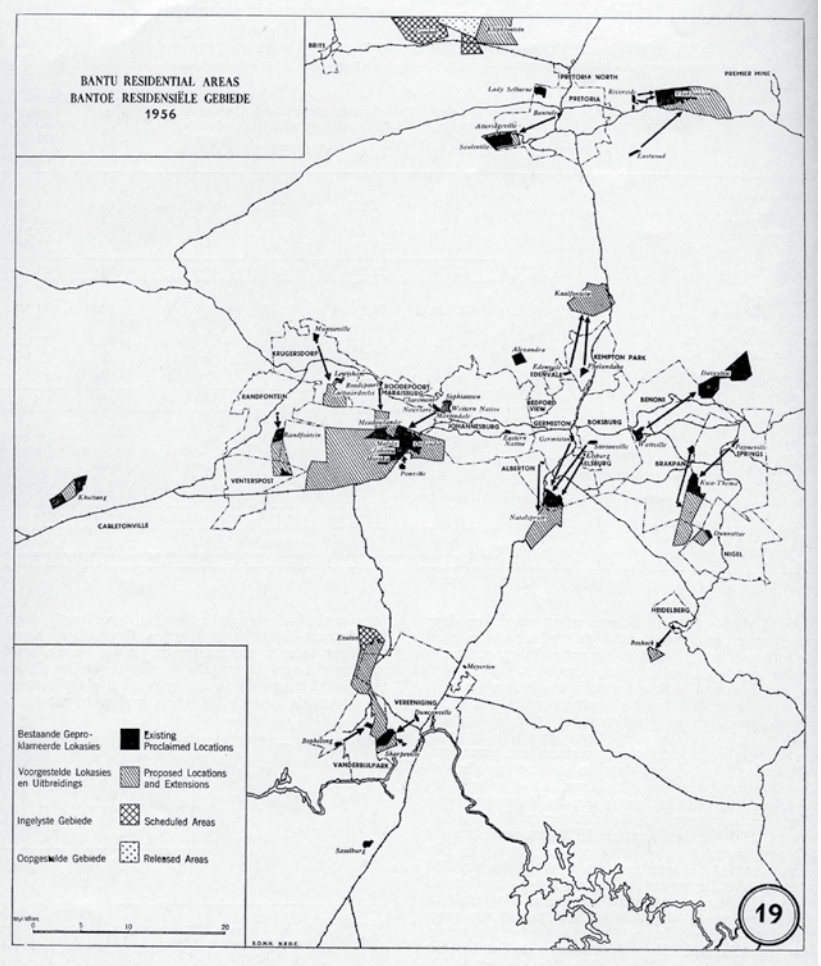
By contrast, the entire area between the Witwatersrand municipalities and Pretoria (except for Alexandra and the new complex allocated for Tembisa) became either white group area, or generally regarded as 'white' space given 'controlled area' status under the Act.[4] South of Johannesburg the effect of the Mentz committee's work was the creation of a 'white triangle', more or less bounded to east and west by the two railways lines running south from Johannesburg to Vereeniging (Mabin and Royston, 1991).

Hundreds of thousands of standardised housing units fleshed out the scene. Standard models had been designed with full modernist enthusiasm by the National Building Research Institute, yet another entity created by the previous regime but by 1951 pressed firmly into the service of comprehensive segregation (Mabin, 1992). Municipalities built most new public housing with government subsidy (and sometimes private bridging finance) in the new, consolidated township areas carefully located at a limited number of sites across the region. 'Modernisation' could be mapped (cf. Figure 1) as old 'locations' were destroyed and new townships rose – a process which continued throughout the sixties and into the seventies as, for example, the old Brakpan location's residents were removed to consolidated townships and group areas in the form of Tsakane, Reiger Park and Actonville (but a process which was never completed, as surviving older locations such as Dukatole testify).

By the later 1950s the spatial conception of 'the Southern Transvaal' as a comprehensively segregated region of an industrialising economy had been imposed rather effectively. A further element informed by a conception of the urban region was the creation of two 'new towns' for new, state-initiated industrial complexes – Vanderbijlpark (ISCOR) and Sasolburg (Sasol) across the Vaal River in the northern (Orange) Free State (interview Kantorowich 1991). Here again, the NP government vigorously pursued ideas which could be traced back to planning under the previous government. Yet state-led industrial development, group areas design, African township building, subdivision of new suburbs, road planning and a host of other activities held the potential for mutual contradiction. A number of the departments and local authorities involved articulated concerns about the lack of coordination of these activities and expressed the view that a single organisation should take a lead in planning for the development of the region on a broad basis. Once more, it was a body created by the previous government which took up the task – this time, the NRDC, already implicated in race-based spatial planning as described above.

[4] 'Controlled' meant owner or occupier could not change without a permit, except to people of the same 'group' – and in general ownership was not disturbed, with some intriguing results such as that the Mia Trust estate on both banks of the Jukskei and either side of the main Johannesburg-Pretoria road, remained in the hands of people canny enough to beat racial restriction.

Figure 1. 'Bantu residential areas' and their relocation in the fifties



(source: NRDC, 1957. map 19)

3.3 NRDC's 'Red Report' of 1957: the 'cruciform' of the city-region, 'member of the global metropolitan family'

Comprehensive segregation will probably long remain the dominant understanding of South Africa's changing geography in the forties and fifties. Yet other features of spatial change deserve mention. Establishment of 'new towns' by national government and by private companies is one special feature of the period. Vanderbijlpark and Sasolburg, towns established by parastatals (ISCOR and Sasol) north and south of the Vaal River on coalfields not far from Vereeniging, gave the southern reaches of the urban region much greater weight and caused it to spread into a second province – the Orange Free State of the time. To the south west, mining companies going ever deeper after gold began to establish nascent towns before the second world war. Westonaria and Carletonville followed as companies combined and provincial administration supported creation of new municipalities. And at the same time the population and extent of Pretoria, Johannesburg and the 'reef' municipalities expanded rapidly – by more than 20% in the five years from 1946 to 1951, and the pace continued (URRU, 1973. table 5). Following a series of meetings convened by the Administrator of the Transvaal and the City of Johannesburg, among others, in the early fifties, concern for coordination generated the idea of developing a planning strategy for the 'Southern Transvaal', which was conceived as including the region stretching from North of Pretoria to

south of the Vaal River and from Springs to Carletonville (JH Moolman, interview with A Mabin and P Hattingh, Pretoria, 07.06.1995).

In January 1953, the Natural Resources Development Council (NRDC) established a Subsidiary Planning Committee for the Southern Transvaal, consisting of representatives from a wide range of government departments and agencies including Transport, Group Areas, Mines, National Housing, Native Affairs, Railways and TPA, chaired by Dr JH Moolman, Director of Planning at the NRDC. Similar structures had supervised the planning of the Free State Goldfields and the far west and far east rand goldfields previously. Under the auspices of this committee, NRDC staff, led by TJD Fair, conducted and published a *Planning Survey of the Southern Transvaal: the Pretoria-Witwatersrand-Vereeniging Area*, which was compiled over four years and released in 1957. The term 'PWV' entered official parlance as a consequence of this report, and gradually spread into the popular lexicon, substituting for the 'Southern Transvaal'.

Popularly known as the 'Red Report' on account of its lurid cover rather than a political direction, this report provided an eloquent analysis of the key features and trends of the nascent city-region, and still rewards reading today. While its focus was on land use and its product was a 'Preliminary Guide Plan for the PWV', its analysis of economic activity formed the basis for its understanding of the region. The decline of gold mining, substantial industrialisation and increasing integration of economic activity across the entire region formed the substance, as did associated social changes. The report was produced by a team of seven staff at the NRDC: they made creative use of available data; they were able to show the interrelatedness of all parts of the region but not to quantify or map its labour markets or commodity flows in the detailed way then beginning to emerge in work on major city-regions in Europe and North America, where presumably much greater human and data resources were available. The most important conclusion of the 'Red Report', was simply that 'there is an pressing need for a regional plan for the three metropolitan regions of the southern Transvaal' (p. 74).

The authors saw 'the Southern Transvaal' as 'a complex consist[ing] of three major nuclei (Pretoria, Johannesburg and the inner zone of the Witwatersrand, and Vereeniging) and a number of smaller centres. These together form an almost continuous fabric of urban and peri-urban development roughly **cruciform** with both axes approximately 80 miles in length. However, the four sectors formed by the arms of the cross are gradually being filled in by very low density peri-urban and small farm development to produce as a whole an **incipient diamond-shaped structure [emphases added]**. Within this complex live nearly three million people (some one million are of European descent)' (paraphrased by the report's main author and a key collaborator, Fair and Mallows, 1959. p. 126). Parallels between the local situation and other major city-regions held great significance for the authors of the 'Red Report': 'the Southern Transvaal possesses all the characteristics of form and function of the major metropolitan complexes of the world. Though in scale the present pattern may not yet appear as large nor the overall urban density as great as those of the major complexes of Western Europe and North America, the growth of this regional structure in time is just as spectacular as other members of the metropolitan family' (Fair and Mallows, 1959. p. 134).

Whilst most of the 'Red Report' is devoted to analysis of the existing situation (and a theme of needs for further research), the last chapter (13) turned to 'the need for regional planning' and introduced the idea of a '**guide plan**' for the future of the area. Much of the attention of the plan fell on Johannesburg and its surrounds, for 'it can be said [of the Pretoria and Vereeninging metropolitan regions] that the magnitude of the planning problems nowhere approach [sic] those of the Witwatersrand …' (p. 74).

The conception of the future introduced by NRDC was later aptly captured by Mallows (1961. p. 47): 'it is clear that the present state of the Witwatersrand with its loose, disintegrated texture due to mining activity and old haphazard growth can be turned into an asset, it could be redesigned to meet the challenge of a new age and a new technology. Its loose texture permits fast transportation routes … with residential areas well connected to these fast routes and so easily accessible to shop and factory and office.'

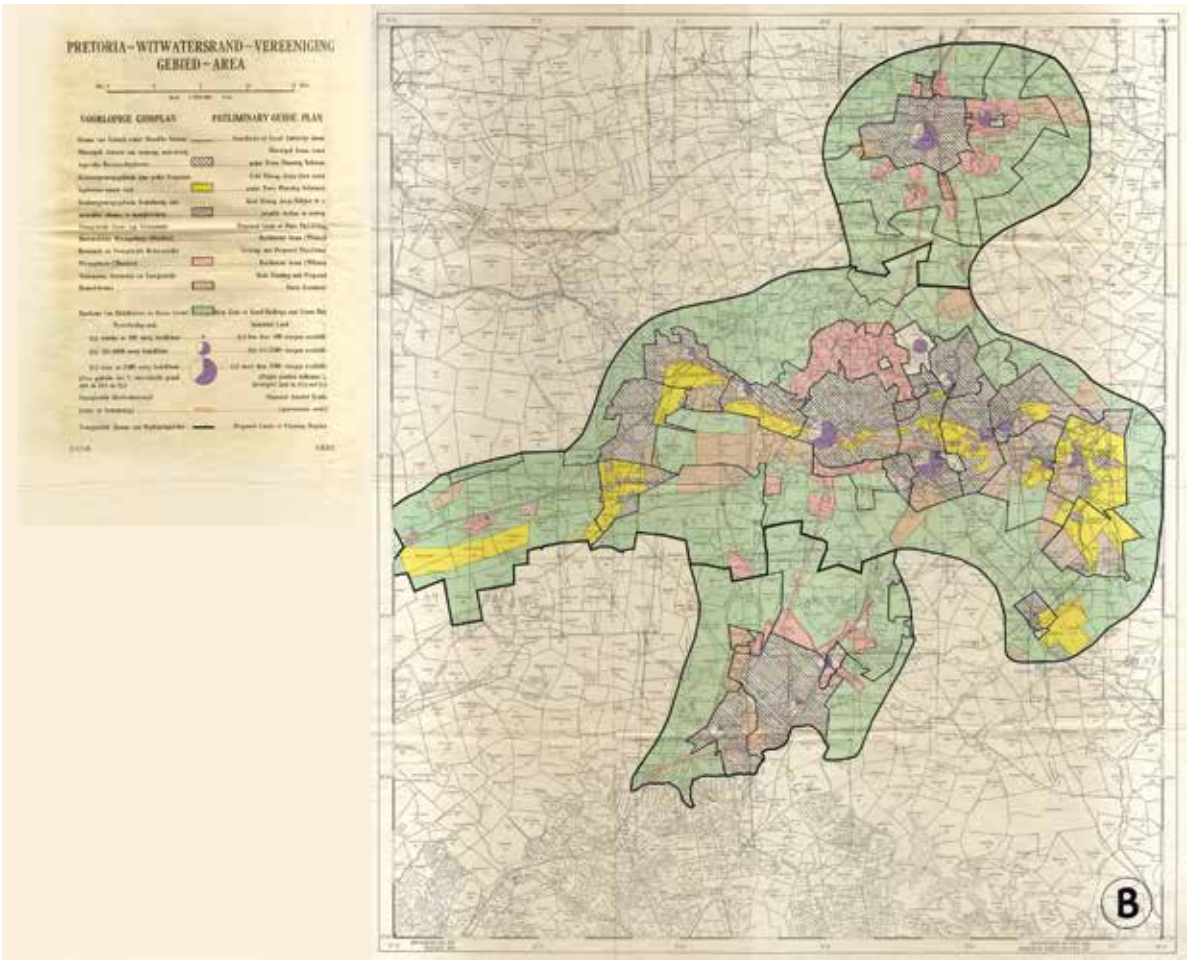
On the basis of this conception the guide plan map was produced (Figure 2). The report suggested:

> *What is required is not a rigid master plan but a guide or outline. The purpose of such a plan is to give a broad picture of the intentions and expectations which a regional planning body [would have] … according to the dictates of public policy … Such a regional plan should be comparatively simple … it should be sufficiently practical to indicate … what really needs doing and what is physically and fiscally possible within the foreseeable future.*
>
> *Such a plan cannot be revolutionary … rather It must be evolutionary … (p. 74)*

The report proceeded to summarise seven elements of the guide plan, which in current terms might be paraphrased as follows:

1. areas to which more detailed planning needed to be extended
2. industrial land available and suggested
3. an urban growth boundary, for white residential areas – 'the boundaries which should not be exceeded by approval of further residential townships'
4. a green belt essentially the same as 'the small holding zone'
5. Mentz committee recommendations on black residential areas allowing for their expansion (in line with the points made above)
6. two major new road routes, north to south and east to west passing through or close to existing centres
7. and the three 'regional planning areas' for which it recommended planning committees be established.

Figure 2. 1957 'Red Report' Guideplan



(source: NRDC, 1957. map 8)

The report predictably argued that 'a more comprehensive plan is needed, but is beyond the scope of this report' and that a planning authority should be established for the whole PWV area. It then stated that 'the NRDC has a substantial claim towards being regarded as a most suitable body to undertake the regional planning of the Southern Transvaal, especially in view of its experience …', mentioning the planning of the Free State gold fields and more (p. 77).

Following the recommendation of the Red Report, the NRDC was proclaimed as the planning authority, but without any powers to impose its will, unlike the situation which it had enjoyed in the Free State goldfields, for example. This reality contradicted the claim by Moolman (1961. p. 37), director of planning at NRDC, that 'a national directive has been given to the future development of the region and adequate control for its implementation established'. However, the NRDC continued its attempt to produce a regional plan and its authors may by persuasion have had some effect in shaping development in the PWV – certainly meetings continued and occasional reports were produced (NRDC, 1959). The planning committee continued the familiar call for coordination and resources:

> *It is imperative that the planning machinery should be characterised by strong coordination between the bodies concerned at a fairly high level … What is in fact required is, firstly, a regional planning*

> *body … charged with the responsibility of drawing up and revising from time to time a guide plan for the future development of land-uses in the Southern Transvaal. Secondly, an advisory body of a panel of advisers [sic] representative of non-official interests (such as mining, industry and commerce) is necessary to assist the regional planning organisation …(NRDC, 1959. p. 63)*

The committee wanted a staff of 15 people, the 'costs to be borne jointly' by national and provincial government and local authorities (NRDC, 1959 pp. 63, 71). Such 'machinery' was not forthcoming. Essentially weak spatial planning continued haltingly, while divergent views of the position of the Southern Transvaal in the national context, grew further apart. Moolman aligned with national policy for 'bantustan' development as a priority (cf. his 1961 article); Fair, the NRDC's key research planner, inclined to emphasise the importance of the region to the country. Talk of a new national planning ministry abounded whilst its purpose would be contested.

Perhaps it was the 'lame duck' image which became attached to the NRDC in the mid sixties which reduced its effectiveness, or possibly the immensity of the task of analysing, understanding and producing alternatives for the growing city-region proved too much for its divided staff: by 1967 Fair had left the country to take up an academic position in the USA.

The 'Red Report' marked **the first major document seeking to understand and plan much of the space** we would call GCR today. Its sophistication, its grasp of change and its proposals, albeit deeply flawed by immersion in the drive for comprehensive segregation, remain impressive today. Its regional study and guide plan had, in the longer run, far more conceptual than practical influence. Not least, it aided in developing a name for the city-region – clumsily perhaps as the PWV, but the equation between a name and the concept of a single region was among its main influences.

Appointment of the NRDC to undertake PWV-scale planning was in some respects the last gasp of an earlier regime's planning instruments. Most older apparatuses had one by one been superseded by the end of the fifties. The LTAB transformed into a far more powerful Group Areas Board and then a Community Development Board. Committees handling comprehensive planning were succeeded by substantial state apparatuses, as the size of the bureaucracy exploded – something to which Harold Wolpe (1990) usefully pointed. Whilst the system was by no means uniform or all-powerful, it was certainly ready for development in more fully modernist directions. Yet those directions – starting with an appearance of strength and potency – ended up failing and once again producing ad hoc solutions. The next section of the paper explores this trajectory and places new conceptions and forms of spatial planning in that light.

4. Managing the 'PWV' from crisis through stability to challenge: spatial planning in the sixties and seventies

4.1 Crisis and response

Not only did South Africa, and perhaps especially the urban region around Pretoria, Witwatersrand and Vereeniging (PWV), experience an economic downturn at the end of the fifties; protests against apartheid, especially the pass laws, culminated in the shootings at Sharpeville and Langa in March 1960 and severe economic consequences. But a massive crackdown followed and the state was able to develop its powers to crush, for the time being, almost all opposition. A massive focus of state apparatuses and many non-government organisations, particularly of mines and other businesses, on recovery from the crisis, met successfully with expanding global economies, and the economy grew rapidly. For a time, it seemed as though the modern urban regime which the state had created would survive and prosper. Through the seventies, though, this apparent stability eroded in the face of strikes, uprisings and economic stagnation. This part of the paper traverses spatial concept and planning from the sixties to the eighties, placing changing approaches to the PWV in the shifting national context of the times.

As the fifties drew to a close the 'bantustan' or 'homeland' policy began to take firmer shape. This was the 'grand' spatial scale of apartheid, founded supposedly on the notion that somewhat enlarged existing African reserves could become the 'home' of the large majority of South Africans. The idea was that they would see enormous economic development. Certainly they distracted attention from a range of urban issues for some time. In a sense the modernising drive of the state took profound shape through the 'development' of the 'bantustans' (something noted by Chipkin and Meny-Gibert, 2011 amongst others). Bantustans, of course, could potentially contain and constrain organised opposition to those in central state power, but they could not do so alone – indeed, the project failed on that criterion, but perhaps prolonged the life of apartheid and its ruling regime. The cities remained a focus of modernisation to be viewed in close relationship to these 'other' spaces and processes, sites themselves of modernisms, organisation and protest.

In this national context, the most significant effects on spatial perceptions of the PWV were twofold: one, placing it firmly in the national context of a certain anti-urbanism; and two, focusing much more attention on the fact that some of the reserves (nascent pieces of the bantustan archipelago) intended to accommodate a growing population, were situated within (long) commuting distance of Pretoria. The consequences of these elements appear to have been the predominance of ***decentralisation and deconcentration*** as the overarching aspirations of most spatial planning which addressed the city-region at its full scale.

A Department of Planning was established in 1965 and the NRDC was disbanded thereafter. Similar spatial work continued under new auspices, but a national view – a 'grand apartheid' view – took a more central position. Moolman's key theme – the 'problem' of growth of [urban] black population and policy

to control it 'and if possible reverse the flow, towards the new Bantu towns that are being developed in the Bantu reserves of the republic' (Moolman, 1961. p. 40) – would be the main aim of the new Department. That activity was absolutely in line with 'separate development', the new phrase which government strove to substitute for its earlier choice word, 'apartheid'. Yet given the centrality of the PWV in the national economy, government could not ignore the region, and increased its efforts over time to develop concepts and plans for the area. These concepts were inevitably caught between the desire to decentralise population and investment, and a need to keep the PWV goose laying golden eggs on which taxation and the national economy's growth in large measure depended.

Government perceptions of the PWV held the potential to clash with others. In 1959 bodies such as the Associated Chambers of Commerce, the SA Road Federation and 'various industrialists' organisations came together and posed the question: 'when gold mining as a major gainful activity ceases on the Rand, what is to take its place as the economic support of the established region'? They formed a 'Southern Transvaal Regional Development Association' (STRADA) which had as its key objective the 'promotion of some sort of development plan for the area'; the region of its concern was defined as the area south of 26 degrees south latitude stretching to Sasolburg, and form Nigel in the east to Carletonville in the west. STRADA stated 'The Southern-Transvaal Regional Development Association was established to promote local development in the Pretoria-Witwatersrand-Vereeniging area. All municipalities in the Southern-Transvaal are members of this organisation.' For a while STRADA did enjoy the support of municipalities and the Chamber of Mines, and cooperated within the NRDC in its investigations. At a major conference under STRADA auspices in 1963, the executive director, Mr Eklund, said in discussion 'Actually one of the most important activities of STRADA is the attraction of … industrialists to this region. I may say that we do contribute to acceleration of development here' (STRADA, 1963. p. 62c). Eklund went on to note that what he was saying was 'contrary to what Mr J Sadie [of Nigel municipality] says', which was indeed, 'why accelerate the development of the PWV complex? There are other parts of the country too …' So STRADA's emphasis on 'the Southern TransvaaI' placed it on a potential collision course with national policy. That was reflected as National Party run Councils withdrew after the conference starting with Roodepoort in July 1963, and Westonaria in October. In the face of this divide, STRADA rapidly faded from view.

A regional scale of spatial planning was, for the moment, not a national priority. Instead, regional development associations were encouraged – as long as they recognised that special solutions were needed to regional planning in the country since 'African culture [was] totally different from other places', as the recently appointed Minister of Planning, Jan Haak, put it at a symposium on regional planning in 1966 (Department of Planning, 1967). STRADA did not fit that mould; the official idea of new 'machinery' for regional planning did not accommodate such bodies (Viljoen, 1967). Perhaps its most important effect was to provide public support for the notion that the road network of the entire 'Southern Transvaal' should be planned 'for the whole region', which seems to have provided a considerable impetus for the planning and execution of the freeway network then being planned.

4.2 Freeway planning and the PWV in the sixties

The immense importance of road planning both in terms of introducing new spatial conceptions and in shaping the geography of Gauteng is obvious today. Some hundreds of kilometres of freeways and tollways provide major structuring elements in any view of the region, and in large measure, resulted from planning in the 60s and 70s.

The weight of this special form of spatial planning gives the lie to Geyer's (1990) claim that 'for 20 years there was a vacuum' in spatial planning for the PWV. On the contrary, conceptualisation and shaping of the regional space moved decisively from *general* spatial planning into the hands of road planners – traffic and transport engineers – in the 1960s. That theme would develop all the more strongly in subsequent decades. A key difference between general spatial planning and transport planning has been the intimate connection of the latter to funding which could actually make major changes in the space of the region. Since the creation of consolidated townships along Mentz Committee lines, road planning has formed the strongest element of spatial structuring in Gauteng.

A need for new major roads had been stated by many observers from the mid-fifties at least. The 'Red Report' included a guide plan suggesting two large and major new road routes as described above. Fair and Mallows (1959. pp. 135-6) elaborated that idea:

> *The familiar phenomena of growing congestion at the centre and rapid growth on the periphery with the attendant transportation, financial and administrative problems are here in an equally acute and characteristic form. These two forms of growth particularly at each of the hubs have tended, on the one hand, to break the free flow of road traffic along the East-West axis with the result that* **the need today is for routes of the freeway type** *[emphasis added] permitting fast and continuous movement to serve this mining and industrial belt. On the other hand, the problem associated with north-south movement is to break through the urban and topographic barrier of the central Witwatersrand by a similar freeway system. This present need for easier movement along the two main axes emphasises again the essential cruciform nature of the structure.*

The 'Red Report' as seen above, suggested two major new high speed routes – but simply placed those as running more or less through major existing centres. That conception was effectively overruled by national road planning which was vigorously pursued through the 1960s, with roots going back to 1945.

A senior engineer on the staff of the National Roads Board (NRB), PA de Villiers, began to suggest building freeways from 1945, when he first mooted a ring road around Johannesburg[5]. Older than the *ad hoc* bodies created by the former government during and after the second world war, NRB had been set up in 1935 (Floor 1985). Although it had some planning and financial powers, the former provinces including the Transvaal remained the implementing agents, not to mention being in charge of other roads. By the end of the war about 4 000 out of 8 500 planned kilometres of two-lane tarred national road had been completed, while friction mounted between the NRB and provinces over routes and responsibilities.

The NRB worked with the Transvaal Townships Board and the Government Mining Commissioner to initiate a 70 metre wide road reserve for the future ring road during the forties, and in at least one stretch between today's Gillooly's and Geldenhuis interchanges, succeeded in starting to trace the future freeway on the ground. NRB was one of the first old regime bodies to be replaced – in 1948 it gave way to the National Transport Commission (NTC), a body with a wider remit (but less direct implementation power). It took De Villiers several more years to convince this successor body to begin planning for a national freeway system. As in other countries, discussion was influenced by Germany's *autobahnen*, but more so by a key study visit led by De Villiers in 1957 which observed the beginnings of the massive US Interstate Highway system. Upon his return, planning of freeways began more seriously at the NTC.

[5] Paragraphs on freeway planning are mostly based on the account in Floor (1985) pp.55-61 as well as other cited official sources.

The Johannesburg ring road scheme was revived and detailed planning of that and other routes began in 1958.

The first entirely new alignment national freeway was built in the PWV between Halfway House and Pretoria as part of a new N1, and opened in 1968. The road was designed to link Pretoria and Johannesburg just as the 'Red Report' had envisaged along the north-south axis of the PWV – but under the NTC's planning, it was not to be built into the city centres. Instead, it would link to the respective cities' own roads and connect ring roads or bypasses to one another. Both Johannesburg and Pretoria had engaged in planning their own freeway systems. Pretoria's was never built[6], whilst Johannesburg's was greatly influenced by Maurice Rotival, a French architect-urbanist with American experience, retained by the City Engineer in the early 50s (cf. Reid, Rotival and Michaelski, 1955). Its routes followed very much the same lines as those traced in the 'Red Report' of 1957 – but, of course, had to stop at the then municipal boundaries. Two freeways, M1 and M2, were planned and by 1961 the NTC allocated the city R15 million from the National Road Fund, as long as the roads were to link to the national freeway system being planned. Initial sections were completed at the end of the decade and the system reached municipal boundaries at three places during the seventies.

But at the same time the NTC pressed on with a new vision of a future PWV in which freeways ran far from existing city and town centres – the Johannesburg ring road being an excellent example. It decided in 1967 that additional funds would no longer be made available for freeways in the cities. Neither Germiston nor Pretoria could continue with their freeway plans, and Johannesburg's western M2, not to mention a planned M3 to the northwest, were not built. Instead joint work between the NTC and the province expanded, focused on roads outside municipal areas or bypassing existing centres.

By 1965 the Transvaal Roads branch had appointed 'throughway commissions' and finalised the recommendations of four of them. Routes rapidly developed in detail (para 6.1 in TPA, 1966). As the provincial roads department became more enthusiastic about the NTC vision, a first contract for what is now the N3 from Buccleugh to the M2 was let in 1966 (though only completed in 1978). 'Towards the end of [1966] the majority of the most important routes were determined' (TPA, 1968. p. 9). Detailed planning for the 'western bypass' or N1 as part of the ring around Johannesburg commenced in 1965 with completion in 1983.

Freeways planned and built to the east of Johannesburg passed well to the north and south of all the east rand centres. Vastly more money was spent on ring and bypass freeways than on links to existing centres. Thus it is clear that a coalition of agencies led by the NTC began a substantial reconceptualisation of the Southern Transvaal or PWV, which became a reality from the late sixties onwards. This form of planning completely reconfigured the map of public investment in the city-region and its trajectory remains very powerful today. The NTC and Transvaal roads branch expressed their work as being 'the planning of a modern through road system which must for many years satisfy the demands of the Province' (TPA, 1968. p. 9). Road planning differed in many ways from the ideas of more general spatial planning such as that contained in the 'Red Report'. It was led largely by engineers rather than by architects, planners and geographers; very substantial human resources were committed to it; finance was closely connected to it; and it continually involved 'conduct [of] lengthy negotiations with public and private bodies in order to reconcile conflicting interests' (TPA, 1968. p. 9), perhaps a euphemism for continual lobbying. All this

[6] Freeways were not built, but Nelson Mandela Drive along the Apies River valley follows one of the proposed routes, as does Skinner Street, its widening dependent upon demolitions planned originally for freeways. Germiston's proposed freeway from the M2 eastwards also languished.

implied that road or transport planning developed a distinct and practical politics, working to realise the vision of the engineer-planners in a new and important manner.

Taking a broad scale view of the structure of Gauteng's freeway system, it is apparent that the road planning of the sixties moved away from previously dominant spatial concepts in several respects. A simple cruciform idea of the city-region was replaced by something more like a large 'H', placed on its side if south be at the foot of the map. With freeways being built to the east of both Pretoria and Johannesburg as well as projected to the west of each, the PWV potentially had not one but two east-west axes – an idea developed further within a couple of decades. At the same time, the north-south axis was lent particular strength. For the first time Pretoria was to be linked through the Witwatersrand by two major freeways (now the R21 and N1), and in turn the Witwatersrand would be linked to the Vaal area by two freeways. In each case one of the new roads would trace approximately the oldest railway axis from north to south and one would run through more recent road-based development areas to its west, thickening the crossbar of the 'H' substantially and extending it strongly to the south. The new concept of space introduced here visualised leapfrogging the centres of Pretoria, Johannesburg and other towns. To what extent military and security considerations entered the planning mind remains to be examined as archives become available, but one can guess that these factors were just as significant as they were in Eisenhower's national system of 'interstate and defence highways' in the USA.

Of course, these new routes opened up extraordinary possibilities of changed perceptions of space, new centralities, and new prospects for profitable property development in zones which would have been remote without the new road system. In the long run, shopping centres, office parks and other developments would spring from the freeway reshaping of space, from Menlyn to Southgate and from Eastgate to Fourways. While the new roads did little to support the 'incipient diamond shaped structure' perceived by the authors of the 'Red Report', they certainly held the potential to disperse development from traditional centres. In many directions, suburban growth was facilitated by the freeway system (as well as other major roads), something also remaining to be researched in more detail.

In sum, road planning had taken off dramatically during this period, whilst more general spatial planning had languished. Traffic engineers had laid the foundations of a thoroughly modernised PWV, potentially altering movement patterns for many whilst leaving formal segregation untouched. A period of rapid economic growth provided both 'need' and funds for realising this planning. The framework within which other new concepts and practices of space in the PWV emerged was set by the new freeway system, in the context both of rising state control – and of challenges to it.

4.3 Spatial planning's return in the seventies: informing 'guide planning' from an academic base

While road planning firmly established new perceptions and new spatial organisation in Gauteng, national government continued to seek the elusive coordination and integration of action more generally, which the Department of Planning had been established to achieve in the mid-sixties. Space and spatial planning is often seen around the world as a means to such coordination (Faludi, 2000; Albrechts, 2006), and the government of the high apartheid period was no exception. The new national planning department's mandate included national scale thinking, and one of its earliest major products was a White Paper on decentralisation of industry in 1971. A national spatial scale increasingly entered policy, assuming that industrial employment could be decentralised to the borders of 'homelands' and indeed, into new industrial areas within the latter. That scheme went hand in hand with the notion that black

residential areas somehow would not expand, except in 'homelands'. Both people and factories needed diversion in this view (Bell, 1986). And for conceptualising 'the PWV', the results were significant. They came especially through development of a 'guide planning' system.

During 1971 the Prime Minister's Planning Advisory Board[7] established a central guide plan committee which sought to co-ordinate urban planning on a non-statutory basis (DoCD, 1984. p. 4). Although already on the statute book since soon after the creation of the Department of Planning, a 1971 amendment of the Physical Planning Act substantially altered the context of strategic planning in line with the emerging national vision. It provided for a process of 'guide planning' for regions of the country. This activity was to be undertaken under the supervision of committees appointed by the Department of Planning; but an initial largely voluntary system simply did not work. Rather than recognising that government was trying to control something like the tides, in 1975 the Physical Planning and Utilisation of Resources Act (88/1967) was again amended to give guide plan action legal status; during 1981 a further amendment (51/1981) made guide plan provisions binding on the public sector. After several stages of publication and commentary, guide plans would become statutory documents, from which no subordinate level of authority would be able to deviate. One of the key elements of guide planning would be to coordinate racial allocation of land and the establishment of industrial areas. In 1972 guide plan committees were established at various scales covering the entire 'PWV' (Hendler, 1992. p. 43). Subregions of the PWV were identified as metropolitan Pretoria, West Rand (Carletonville to Roodepoort), Johannesburg, East Rand, Far East Rand (Brakpan to Heidelberg and Nigel), and Vaal Triangle. But without a regional view, the committees for these subregions could make little progress. The national department lacked capacity to inform the necessary regional work; and taking advantage of that gap, the municipalities of the Witwatersrand, all concerned about their economic futures even if they differed on overall national policy, supported the establishment of a new research and planning entity to pursue work at this scale.

The new body noted a need to address 'current inadequacies in the [Witwatersrand's] administrative machinery at all levels for formulation, implementing and evaluating policy in connection with its planned development …' (URRU, 1973 . p. 4). This was the context in which the Urban and Regional Research Unit (URRU) at the University of the Witwatersrand, Johannesburg, was commissioned to undertake a study of the physical, social and economic characteristics of the Witwatersrand. In order to frame this study, URRU commenced with a study of 'Regional Setting: Southern Transvaal', which was published in February 1973. And the key author of this work was none other than TJD Fair, who returned from the USA in 1971 to establish the unit. Not surprisingly there are echoes of his earlier opus, the 'Red Report', in the 1970s products.

URRU departed from a basic concept of 'the Witwatersrand [as] the metropolitan hub of the Southern Transvaal, which in itself is an urbanising region stretching from Pretoria in the north to Vereeniging and Sasolburg in the south; and the Southern Transvaal is in turn the dominant hub of development in the RSA as a whole …' (1973. p. 2). URRU did not anticipate that decentralisation policy would have more than a limited impact on what was happening anyway (1973. pp. 82-90).

The URRU approach followed the intellectual patterns of the time, set in ideas of 'diffusion of development … innovation, modernisation and cultural change … throughout the nation'. Fair's sojourn of half a dozen years in the USA had exposed him to new concepts which he eagerly applied to the PWV's spatial structure: '… there are fundamentally *megalopolitan* concepts which are … applicable to the planning

[7] Descended from the NRDC via Resource and Planning Advisory Council, which held its first meeting in March 1966.

problems of the Southern Transvaal. For example, there is John Friedmann's concept of an "urban field" or "vast multi-centred region having relatively low density", which "planners refer to … disparagingly as peripheral sprawl" although it "may be regarded as the basic territorial unit of post-industrial society". '**It may be argued that the Southern Transvaal is already a small-scale megalopolis, in which the constituent metropolitan regions and satellite towns appear to be coalescings region** [emphasis in original]. Such a region will be characterised by a functional specialisation between its major urban concentrations – a specialisation which is already in process – and by a convergence of growth rates within its urban hierarchy – a tendency which has been apparent since the 1950s. These trends thus present the possibility of planning now towards the eventual emergence of an "urban field"' (pp. 96-7). Further parallels were drawn with Singapore and, especially, Randstad in the Netherlands. It was with this new understanding that the broad notion of the fifties, could be restated:

> *The Southern Transvaal is extremely fortunate in that, by rare historical accident, it has inherited a physical and spatial structure which permits a wide range of alternative plan-forms. First, in terms of nodality, the region is both centre-orientated to major core cities and highly decentralised, with considerable commuting to towns and cities of lesser size. Secondly, in terms of function, it displays a clustering of different but interrelated activities, such as administration in Pretoria, commerce and finance in central Johannesburg, lighter industry in Johannesburg and on the East Rand, heavier industry in the Vaal Triangle and gold mining on the Far West Rand. Thirdly, in terms of form, it possesses patterns of concentration in major urban nodes, of dispersion to lesser nodes, and of linear axes of movement along which the nodes are strung.*
>
> *Because of this relative lack of structural constraint, any one of a wide range of planning concepts is physically applicable to urbanisation in the Southern Transvaal … (pp. 94-5).*

However, Fair and his associates did note some important changes from the fifties: thus, 'the north-south axis of the Southern Transvaal is assuming an ever growing importance …' and 'the utility of the [existing rail system] as a regional distributor of labour is … impaired in so far as it passes to the east of most major urban development between Pretoria and the Vaal Triangle' (p. 10). They noted the result: 'between 1954 and 1970 the column of road traffic … trebled, and even quadrupled on the main axes …' (p. 68).

Despite being well aware of Melvin Webber's (1961) dictum that 'the effect of a transportation system … is to create its own traffic demand' (p. 78), the solution proposed to these changes emphasised the road system and its development. Citing John Friedmann (1972) with whose work Fair had become familiar during his six years in the US, URRU stated 'in fact, it is extremely unlikely that, in a multi-centred system, the necessary mobility can be provided in any other way than by automobile expressways, for metropolitan regions depend upon *individual* facility of movement'. They continued 'Major lines of movement form the skeletal framework around which land uses, and patterns of employment and residence, are built …' Cars would be the 'inevitable mode of transport in the future … despite the possible growth of mass transit systems in response to the increase in the non-White urban population' (pp. 66-67). Their argument was that:

> *metropolitan planning … should reserve land for the highways, railways … and other physical structures which will be required. It is … urgent, therefore, that a decision be taken as soon as possible on a strategy or strategies of development for the Southern Transvaal … in order that the disposition and character of broad future land uses may be determined, that the appropriate infrastructural response to these planned uses may be projected and designed, and that early reservations of land may thus be made prior to actual development … (p. 77).*

Presaging debates which have re-emerged forty years later, under very different political circumstances, Fair and his co-workers went on to say that:

> *The crucial planning issue is whether the future physical development of the Southern Transvaal should be organised (a) on a primarily metropolitan basis, thus emphasising the existing structure … or (b) from a primarily megalopolitan standpoint … from a design viewpoint either of these basic alternatives is a feasible planning strategy; but the over-riding consideration must be the role played by the region in the evolution of the national space economy and the need to maintain that role (pp. 100-101).*

URRU's conclusion was that:

> *in the short run of, say, twenty years [up to early the 1990s] planning policy in the Southern Transvaal should be directed to meeting the needs of the modern industrial city on a metropolitan basis … [with] containment of inter-metropolitan sprawl … a development axis approach with centres built up along transportation axes between metropolitan cities, may make possible the retention of access to agglomeration economies without sacrificing access to the open countryside … one possible strategy could thus be to encourage the present growth of manufacturing industry and supporting commercial activities along the north-south road and rail axes of the S Tvl … and to discourage growth elsewhere between the three metropolitan regions (p. 102).*

As 'an alternative strategy' they went on, 'industrial development and supporting commerce could be encouraged to expand along the east-west road and rail axis of the S Tvl, i.e. from Nigel and Heidelberg in the east to Westonaria and Carletonville in the west along the major axis of the Witwatersrand …' on gold mining land becoming available; or, 'alternatively again a fusion of these two possible strategies might be considered preferable …' (pp. 103-4).

However, their clear preference was for something conceived at a larger scale, at least in the longer term. 'Instead of retaining and building further on the existing *metropolitan* structure of the S Tvl, planning strategy might be founded now on a fundamentally *megalopolitan* approach to the question of urban form … the three existing metropolitan regions would then form the major nuclei of an evolving *regional city*' (p. 105). In that light, the scale again expanded, and they suggested with a view to thirty years from their work:

> *the future megalopolitan region of the S Tvl may be envisaged as a regional city consisting of well-defined, high-density urban clusters, which are interlinked by rapid means of transport and are surrounded by low-density land uses … long-run (i.e. beyond say 2000) strategy might well incorporate … the future expansion of towns which are peripheral to the present region – as extensions of its network of urban places … Brits, Rustenburg … Babelegi … Potchefstroom, Parys, Bronkhorstspruit and Witbank. All could be viewed as potential nuclei of an expanding regional network of urban clusters (p. 109).*

When early outlines of a PWV-scale guide plan appeared from national government the next year, 'the report [was] based largely on the results of research undertaken by the Urban and Regional Research Unit of the University of the Witwatersrand under the leadership of Dr LP Green and Prof TJD Fair'. The new proposals were 'for general comment and consideration by the [subregional] Guide Plan Committees'. The 'PWV' was called an 'urban agglomeration … surrounded by partly urbanised areas, and non-urbanised areas focused mainly on agricultural and extensive residential purposes' … 'the complex …

can be described as a linear, urban development stretching east-west along the Witwatersrand from Heidelberg to Carletonville with Pretoria in the North and Vaal Triangle in the South' (Department of Planning and Environment, 1974. p. 4).

Echoing the URRU report, the guide plan proposals posed the question of 'the structure in which future urban development should take place' and 'in this process a boundary is also suggested for future urban development' (p. 3). Demonstrating that government had grasped that the PWV had moved beyond the cruciform structure described in the fifties, the report tied the urban region into the bantustan programme: 'in the light of … economic interaction particularly in regard to the employment opportunities which exist between Pretoria and the Bantu homelands to the north, the south-eastern part of Bophuthatswana [sic] … is considered as part of the PWV complex, although for political reasons the internal planning of this area does not fall within the province of this Department' (p. 6). The jurisdictional limit did not stop the report's authors from developing the idea of a new axis to west and east of Pretoria. 'The existing but weakly developed east-west communication corridor from Rustenburg via Brits, Pretoria, Bronkhorstspruit and Witbank to Middleburg can obtain new meaning in such a system' (pp. 73-4). Of course, that idea fitted well with freeway planning then proceeding under quite separate auspices. The national view was that 'the following broad structures … suggested for the short term … [included] a linear east-west employment axis between Pretoria and Brits' while 'new deconcentration points' were seen as Springs and Krugersdorp (pp. 75-6). The 'long term objectives [were] to direct secondary [ie industrial] development in the region northwards … it is suggested that these activities be placed in such a way that they will be within easy reach of workers who will reside in the Bantu Homelands …'.

With this kind of spatial view driven by the imperatives of bantustan development, it is not surprising that the authors completely missed new emerging nodes and spaces of development elsewhere in the PWV complex. They entirely ignored that private investment was favouring areas such as Sandton, in the core of Gauteng (as well as Bedfordview, south east Pretoria and other spots) and not concentrating on the peripheral locations preferred. Indeed, as was demonstrated by a 1974 conference on metropolitan planning under the auspices of the SA Institute of Town Planners, centrally driven planning had missed not only elements of reshaping under way, but showed a complete lack of engagement with the emerging urban crisis, already looming in growing informal settlement around many cities as well as waves of strike action, and which took only another two years to burst upon the national and international scene (Mabin, 1995. p. 79).

Yet rather ponderous guide planning ground on, with funding from the national government, through the seventies. A National Physical Development Plan appeared from the Department of Planning in 1975 (Department of Planning and Environment, 1975a), and repeated the desire to develop the northern east-west axis identified in the guide plan proposals as well as in transport planning. Also during 1975 the department published 'Amended proposals for a guide plan for the PWV' (Department of Planning and Environment, 1975b), claiming that the 'proposals' of the previous year 'evoked widespread interest and much prominence was given to it in the press and on the radio …'; comments had been received from 98 organisations or individuals, professionals and others – not really an overwhelming amount of feedback from the public.

Superficially the 1975 plan changed little, but in reality it represented a change of direction from 1974. The emphasis clearly moved (cf. p. 2) to preparation of subregional plans and a downplaying of the whole regional view. One can discern an abandonment of the URRU view of the 'regional city' – which left PWV scale planning very much to the transport engineers, whose work was gathering force at just the same time.

4.4 Freeways to the future: road network planning for PWV 1971-80

The origins of the freeway system in Gauteng were described above (section 4.3). With the major spatial concept well established – freeways bypassing older centres and lending weight to the importance of a northern east-west axis as well as the north-south one – construction continued. In the early seventies the outlines of the new road-created spatial structure of GCR were well established and celebrated by the TPA Road Department (Figure 3). The way was open for a new comprehensive approach to the full major route network of the future. Each annual report of the TPA roads branch for the early seventies repeats the mantra that 'the task of planning a proper main road network for the ever-increasing traffic needs of the province was again carried on with unabated zeal …' (TPA Roads, 1973. p. 9).

Although the relevant public bodies (NTC and TPA) had significant planning capacity on their staff, they also expressed mounting concern at a lack of human resources to do everything they wished, and annual reports also reflect growing use of consulting engineers. That complaint eventually became the justification for appointment of a large private sector consortium to do major new planning.

The origins of the consortium's remarkably powerful role can be traced back to 1969, when the Transvaal Executive Committee, without any tender process, appointed Mr A van Niekerk of Van Niekerk Kleyn and Edwards consulting engineers, as the leader of a 'proposed consortium'. Oversight was to be provided by an 'interdepartmental committee' including the directors of roads branch and local government; and a representative of the (national) department of planning and environment (PWV Consortium, 1973. p. 1, referring to Tvl Exec Cttee resolution 935 of 25.03.1969).

Figure 3. The PWV seen as a network of freeways 1970s



(source: Transvaal Roads Department, 1975. cover)

By 1973 the consortium had been more firmly established (PWV Consortium, 1973. pp. 1-2, referring to Tvl Exec Cttee resolution 548 27.03.73). The provincial administration appointed five consulting engineering firms as members of a group 'to assist the interdepartmental committee with the investigation'; Van Niekerk continued as leader.[8] The consortium also appointed two 'town and regional planners' – Professor W Mallows of Mallows, Louw, Hoffe and partners, and Mr Dirk Viljoen of Plan Associates. 'These town and regional planners will in turn consult Prof Fair of the URRU at Wits', noted the 'prospectus' for the study (PWV Consortium, 1973. pp. 1-2).

The consortium's driving force resided neither with provincial administration nor with the spatial planners, but with the engineering firms. Their adoption of the more general spatial view arising from the URRU work (section 4.4 above) was limited to welcoming the idea that the PWV would continue to grow rapidly: 'there appears to be general agreement that the area will experience sustained growth and expansion rates' (PWV Consortium, 1973. pp. 8-9). The national government's favouring of an east-west axis through Pretoria was preferred to other views, and indeed, propounded by the planning consultants: Mallows, despite his long collaboration with Fair conceived around the centrality of the Witwatersrand, spoke of 'the north as the future agreed by all' (SAPOA, 1975. pp. 34-55).

The URRU view had been to encourage, gently, the full regional view, and to project that scale as more valuable in the long run than the subregional view. The PWV Consortium, however, adopted an entirely different approach to planning for the region. When its first major public reports appeared in 1975 (more or less simultaneously with the Department of Planning's revised guide plan proposals), they made this view quite clear:

> *For the successful economic and social development of the PWV region it is necessary to plan for and satisfy the transportation needs of the region as far as possible. The regional study is necessary because of the very important interaction between the metropolitan areas within the PWV region.* **The study is therefore directed more towards inter-metropolitan travel than intra-metropolitan travel.** *The main objective … is to determine the total transportation needs of the PWV region in the future thus enabling an efficient system of transportation facilties for the movement of people and goods … The study will also provide valable data for other studies and will form a basis for a continuing regional study (PWV Consortium, 1975a. pp. 1-2).*

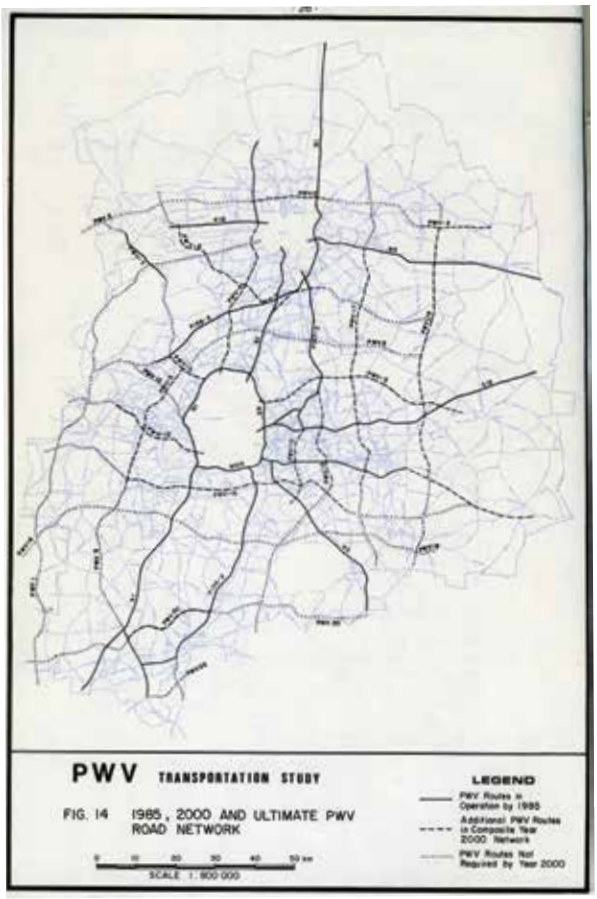
The method adopted was one of modelling traffic patterns under an array of assumptions concerning future employment and residential locations. Predictable oddities of the time crept in. For example, HM van Rooyen, describing the modelling methods, stated 'Due to differences in travel patterns of White and Non-White, the two groups will be treated separately as far as transportation models are concerned' (PWV Consortium, 1975b. pp. 19-24).

The PWV Consortium produced a series of reports on the region which resulted in the demarcation of a veritable spaghetti of proposed freeway routes, and that were given numbers in a 'PWV series' (Figure 4). Thus PWV-9 came to refer to a proposed freeway intended to connect Mabopane in the North to Randburg in the central Witwatersrand, while PWV-16 referred to a route from south of Randfontein to North of Nigel. The impact of these route demarcations was to sterilise some areas of land and to imply favourable location in others. Over time a number of sections of road have actually been built

[8] The member firms were Van Niekerk, Kleyn and Edwards; Van Wyk and Louw; Bruinette, Kruger, Stoffberg and Hugo; Scott and De Waal; and Jeffares and Green.

according to these alignments, such as the Mabopane-Pretoria road following the PWV-9 alignment, and the Randjesfontein-Olifantsfontein road following the PWV-5 alignment. However, the larger proportion of the proposed freeways have never been built, and the specification of 'K' routes – intended to be four-lane roads at lower standards than the freeways – has had more concrete impact on the PWV. Indeed, a much higher percentage of the 'K' routes has been built. However both PWV and K route plans have had considerable bearing on the way in which specific planning proposals have been elaborated in all areas of the PWV, as they have statutory force and no new development can take place in the road reserves indicated; while many developments have assumed that these roads will be built at some stage in the future.

Figure 4. The PWV major road network 1975



(Source: TPA PWV Consortium, 1975. Final report volume 5 summary fig 14)

The road network plans led to organised responses. Many property owners and developers reacted negatively, in the first instance. At a seminar organised by the SA Property Owners Association (SAPOA), PWV Consortium representative Dr PWB Kruger presented the plans as rational responses to growth: 'it is the task of the study to plan for coordination between land development and the transport system'. (SAPOA, 1975. p. 25). But the chairman of SAPOA's Transvaal townships committee and representative of developer Glen Anil, John Barrie, responded that 'the PWV road grid plan is [like] a CIA plot', reported 'many complaints about freezing areas of land and the consequences of cost', and concluded 'it is totally indefensible to apply this freezing concept over a vast area such as the PWV ... the parameters of this plan are far too wide'. (SAPOA, 1975. pp. 34-36).

The PWV road network plans of the mid seventies were exceptionally important for three reasons. The first was conceptual, for the conceptualisations of 'PWV' to be found in the PWV Consortium plans differed in key respects from others and became more powerful; second, in practice, they created not only a new conception of the region but a new material geography of the urban region; and thirdly, underlying that impact, the plans and their partial implementation indicated the extraordinary power associated with the transport/traffic/engineering/construction nexus – which requires much more investigation than is possible in the present paper. The continuing power of this planning approach often presents itself. For example, almost thirty years later a member of staff of the lead company in the Consortium – now renamed Vela VKE – told an international audience that 'High growth in last the 30 years has shown the wisdom of the founders of the Consortium' (Bloy, 2004). Overall there is no doubt that transport planning was based on a deeply entrenched apartheid model, intended to service a continuation of that spatial structure: enough, surely, to lead to some questions about its predominance.

As the leading spatial planning member of the Consortium (Viljoen) said, its work was 'closely related to the guide planning work of the Department of Planning …' (SAPOA, 1975. p. 20). One might ask, as general spatial planning work proceeded, whether it provided a lead to transport planning – or to what extent the road network plans led the guide planning exercise. One of the ways in which the latter direction became cardinal was noted by the Consortium a few years later: 'The data and results of the PWV study form a regional framework for metropolitan and urban studies in the region; the land use models which were developed for the PWV transportation study are available for land use planning and the formulation of land use policy for the region' (PWV Consortium, 1980. p. 38). The view which, by agreement or other means, came to predominate was that transport, especially road planning, would be the leading force in shaping the spatial form of the PWV and ultimately Gauteng, for a long time to come. How did this come about? A central factor may have been the Consortium's access and capacity to engage frequently and substantially with many actors, including 'various authorities, the Department of Planning and Environment, South African Railways …' Such capacity was not enjoyed by parallel planning processes, which allowed transport planning to take the leading role. And certainly at least as important was the fact that road planning connected directly to government budgets – national and provincial, and local too – in a manner entirely different from broad spatial planning work.

Finally, exactly in the period of the powerful initial work of the PWV Consortium, national government developed new directions for urban transport planning, flowing from the Driessen Commission report of 1974 (Driessen, 1974). The Commission recommended that new sources of funding should be tied to planning at 'metropolitan' scale. The Consortium noted that 'it is not clear from the Driessen report what a metropolitan area will consist of in the PWV area and whether or not the PWV area will form one or several metropolitan areas (PWV Consortium 1975a, p. 18). In subsequent years, metropolitan transport planning agencies were indeed created as a subregional scale in the PWV – ORMET on the East Rand, JOMET for Johannesburg and some of its immediate neighbours, PREMET in the Pretoria case. In a sense those bodies cemented into place a conception of Gauteng as a collection of metros – arguably, precisely as the city-region's development as a whole increasingly blurred whatever older subdivisions of space had existed. But a contradiction between the form of space and the institutions of planning is far from unusual. And over the decade and a half following initial PWV Consortium work, that tension proved rather less dramatic than that between rising oppositional movements and an increasingly repressive state.

5. Challenge, reform, space: late apartheid PWV space and planning in the eighties

5.1 Responding to challenge

Especially on the East Rand, the PWV was the site of extensive strike action from 1973 onwards, and the site where township revolt began in 1976. In response, pressures for reform emerged. New actors populated the scene: unions and civics, as well as NGOs of new kinds. Among the latter, one in particular was concerned with urban questions: the Urban Foundation, a business-oriented and based organisation set up in 1977 which began reasonably successfully to push government into changing some of its approaches to questions which included elements of spatial planning. How did perceptions and representations of space adapt through this period, particularly in Johannesburg, Pretoria and their surrounding townships and urban region?

A shift in the conception of South African regions came with the 1981 Good Hope Conference on economic development, held jointly between government (led by PW Botha) and big business (led by senior executives of such major corporations as Anglo American and Rembrandt). Among the policy-influencing shifts which occurred in this context were the establishment of a Development Bank and in turn, new conceptions of regions within the country, which, for the first time in several decades were recognised as cutting across the boundaries of reserves/homelands/bantustans. This new approach was contradictory, for despite its recognition that the country could be divided economically, the 'independent state' project was not abandoned, and indeed to cope with aspects of social turmoil an additional bantustan – KwaNdebele – was created on land north east of Pretoria from 1979.

The key point about delineation of new 'development regions' was that in defining 'Region H', the earlier 'region 42' as defined in the NPDP of 1975 was expanded not just in size but to include KwaNdebele and Bophuthatswana districts. That accorded with growth of residential areas which happened to lie within Bophuthatswana and KwaNdebele, whose integration with Pretoria and other areas of the urban region was an increasingly obvious phenomenon. Thus Development Region H included territory which had not previously been generally considered part of 'the PWV', and henceforth influenced conceptions of the extent of the region. As Cobbett et al (1985) put it, the eight new development regions including region H 'correspond to changes in the spatial reproduction patterns of capital and labour that have been taking shape since the late 1960's'. Appointment of 'regional development advisory committees' (RDACs) and encouragement to government departments to group their regional representation in new ways conforming to the new regions, all indicated a concerted effort to reconceptualise and reshape territory in a new way.

New 'spatial reproduction patterns' indeed existed on the ground. Industrial development might not have succeeded in remote locations, but more or less suburban sites such as Rosslyn and Babelegi had attracted considerable industry – now within region H. 'Pressure generated by the already desperate need for housing in townships increased: informal housing grew, mainly as backyard shacks, but also

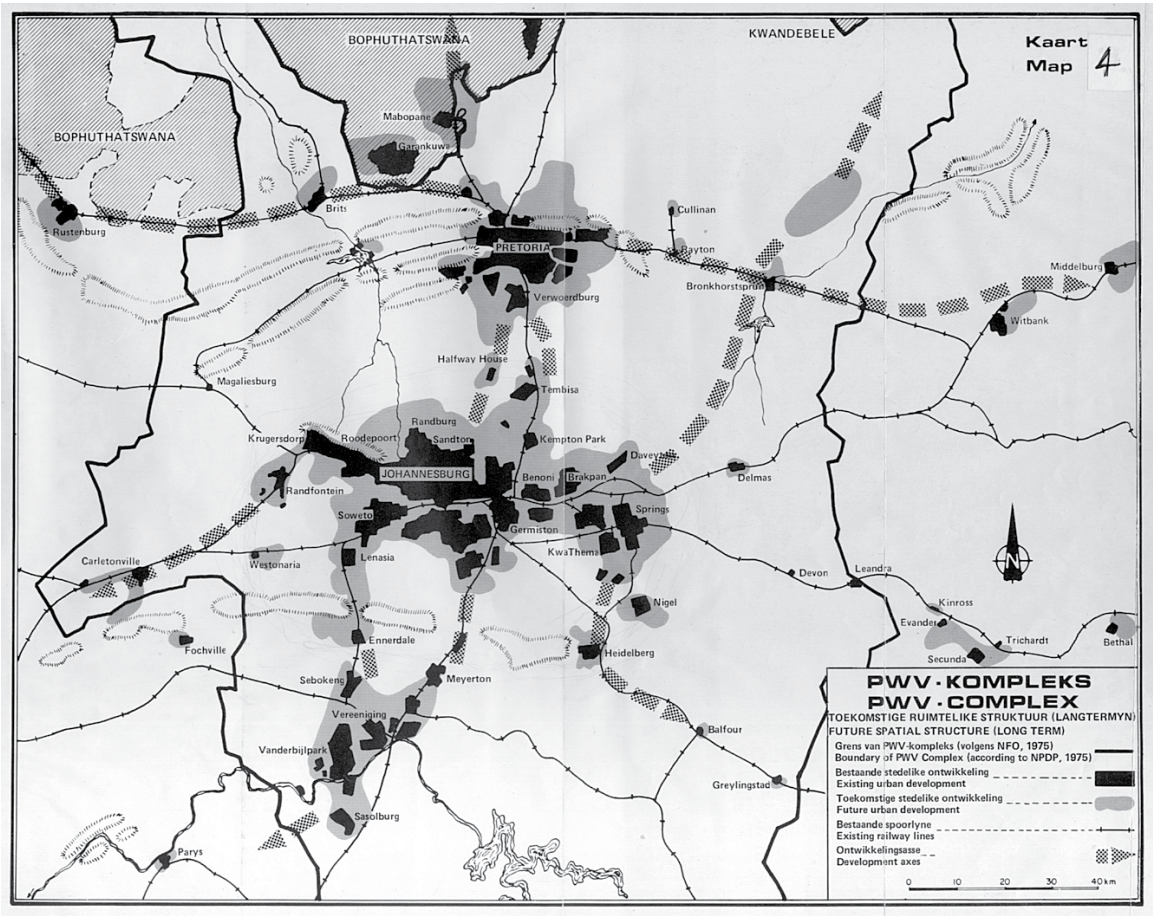
as free-standing settlements bordering on existing townships and in peri-urban areas (that is outside the planned areas)' (Hendler, 1992 p. 69). Names such as Grasmere, Weiler's Farm and Vlakfontein became familiar as debate on the future of housing and land in the region intensified. Yet 'most additional informal development was contained within the segregated African townships, and the guide plans reinforced this tendency. In setting out the spatial limits of African residential settlement the Department of Development Planning's guide plans expressed the Verwoerdian blueprints of the Mentz Committee' of the early fifties (Hendler, 1992. p. 70). It was in this context that guide planning proceeded through the 1980s.

5.2 From 'Spatial Strategy' 1981 to 'orderly urbanisation'

Coordination of government being notoriously difficult, it is often the case that the function moves up to the top levels of the state. By 1981 the Prime Minister's Office had taken over the guide planning function, and issued *A Spatial Development Strategy for the PWV complex* (Office of the Prime Minister ,1981). It was still limited to the old 'region 42' and only indirectly addressed KwaNdebele and Bophuthatswana districts to the north shortly to be included in Region H. The key shift at the national scale meant the 1981 'Spatial Strategy' recognised that the black population of the PWV was indeed going to continue to grow, and rapidly: 'it goes without saying that the provision of adequate residential areas to provide for the existing and foreseeable needs of the *Black population component* forms one of the most important elements for the development strategy' (p. 50 para 6.4.5). Illustrating continued apartheid planning blinkers, the authors thought that '60% of Pretoria's Black worker population will by the end of the century commute to the area of Bophuthatswana and KwaNdebele (p. 52). Yet they did recognise that 'Irrespective of [commuting from bantustans], provision will have to be made for an additional population of approximately 200 000 within the [Pretoria] area itself'. Thus new land would have to be added – at that stage, meaning to the zones created in Mentz mould three decades earlier.

On the employment side, underlying the Spatial Strategy was explicitly the idea of 'the over-concentrated central Witwatersrand' (p. 4): 'the further over-concentration of people, goods and services in the existing core areas [should be] counteracted' (p. 22). Noting that the programme to relocate work from the PWV's older industrial areas to more remote places had not achieved the desired results, the 1981 spatial development strategy (pp. 19-20) recommended *deconcentration* of industry from the Central Witwatersrand to Pretoria, to the East Rand, and to the 'Rustenburg/Pretoria/Middelburg axis'. This axis was seen as requiring strengthening through the provision of infrastructure, with Brits, the Rosslyn area and Bronkhorstspruit as priority growth points: a good fit with the contemporary road planning approach discussed above. In the long run 'future clustered residential development' would occur 'along clearly perceptible development axes …' (p. 26).

Figure 5. A late apartheid view of the PWV



(source: Office of the Prime Minister, 1981. Spatial Strategy for the PWV map 4)

The report thus mapped a '**long term idealised megalopolitan structure'** (Figure 5). 'The long term development strategy for the region should … be directed towards the realisation of a multi-nodal urban region consisting of three metropolitan areas (Pretoria, the Witwatersrand and the Vaal Triangle) in which provision is made for the expansion of existing centres, such as the Springs-Brakpan area, to higher-order focal points within the megalopolitan framework, and the development of additional growth points in or adjacent to the periphery of the PWV complex' (p. 22).

Perhaps the most radical new spatial concept in this report was the elevation of the (then-named) Verwoerdburg-Halfway House (now Centurion-Midrand) area as ideal for 'research-orientated manufacturing industries' (p. 44). For the first time, general spatial planning had introduced the idea of the area between Pretoria and Johannesburg as a major growth zone. It would be more than another decade before national government began to draw the full implications of that notion, laying the foundations for new investments into the future.

The 1981 spatial development strategy was intended to frame subregional planning already taking place through statutory guide plan committees for five sub-regions. The furthest advanced concerned the 'Vaal River Complex', initiated during 1971. A Draft Guide Plan for the area received 'final ministerial approval' during 1982 (Department of Internal Affairs, 1982 – a plan published as the PW Botha government reorganised its ministries, and prepared to introduce constitutional reform while situating its idea of integrating spatial planning within 'constitutional development'). Significant extension of the shadow of

old Mentz areas, such as Sebokeng, can be discerned in this plan: keeping black settlement out of most 'white' space to be sure, but providing for an expansion of residential zones through Wildebeestefontein which would ultimately join with Orange Farm and Grasmere to create an almost unbroken belt of settlement from Soweto to Vanderbijlpark. Control and deep segregation of such of expansion remained the primary goal.

A Pretoria area plan emerged two years later (Department of Constitutional Development and Planning, 1984: ii). This guide plan symbolised the strong control over spatial planning which national government continued to seek – overriding opponents to insist on its vision, not allowing older townships such as Atteridgeville to expand into 'reserved' territory (Hendler, 1992. p. 52) and keeping to an interpretation of space in the PWV, parts of which would begin to unravel.

While planning for the 'East Rand / Far East Rand' reached a conclusion of sorts by 1988 it never reached the statutory stage; and on the further West Rand government agencies made even less progress. By that stage, it may be that national government's emphasis had shifted to other forms of repressive coordination in the face of gathering revolt: the state established Joint Management Centres (JMCs) as part of its National Security Management System (NSMS): JMCs were intended inter alia to identify problem areas timeously, and expedite communication within government circles in order to facilitate decision-making (Hendler, 1992. p. 56). By this time such community consultation processes as had haltingly emerged during the decade had largely been bypassed. Nascent metropolitan transport planning agencies, like ORMET for the East Rand, were developing and shaping infrastructure investment possibilities at subregional scale.

From the mid eighties, however, a significant shift in national urbanisation policy had occurred. Long argument preceded the *White Paper on Urbanisation* published in April 1986 – for which a statutory committee had been established eight years earlier (Department of Constitutional Development and Planning, 1986: iv). Central to what some have called late apartheid 'reform' thinking were the idea that 'influx control' or the 'pass laws' would be abolished; and that the growing black population would require much more land in urban zones. The phrase 'orderly urbanisation' became familiar: the idea being, of course, to prevent land invasions and to keep a fast expanding population to formal housing or at least site and service types of areas – leading to new land allocations around the country (Motherwell and Khayalitsha refer), and across the PWV (such as Orange Farm and New EtwaTwa). Guide planning provided one of the vehicles for figuring where that land would be, and ensured it would remain mostly peripheral. Whilst in many cases it could remain within shadows of the old Mentz zones, in a few cases controversial new proposals emerged and altered long-established conservative apartheid concepts of space. This planning took place within government approaches which saw increasingly powerful roles for security apparatuses. In attempts to contain the rising challenge to apartheid particularly from township civic movements, 'Joint Management Centres' (JMCs) and other apparatuses of a national security management system emerged under a 'total strategy' which brought together elements of development (like electrification of township houses), repression (detentions and intimidation) and attempts at co-option of elites (Swilling and Phillips, 1988). Provincial and local authorities tended to be subordinated to powerful security officials as planning continued (Hendler, 1992). Yet such approaches proved unable to control events.

A Central Witwatersrand Draft Guide Plan had been released for comment in 1986 (Untitled, 1988), addressing Johannesburg and its surrounds, including Randburg, Sandton and then-non-incorporated areas between them and Pretoria. 'Soon after its publication the draft plan became the subject of much protest and controversy. The controversy stemmed from a proposal to establish an African township

in the north-eastern corner of the (central Witwatersrand) area dubbed 'Norweto', and illustrated the resistance of fairly wealthy middle-class white residents in the north east to the proposal to establish an African township in close proximity' (Hendler, 1992. pp. 57-58). The area in question had figured as 'regional open space' in 1970s guide planning, outside the then-proposed urban development boundary. Although the proposal was shelved (*Business Day*, 11 February 1987) in the face of complaints from white residents in the area (*The Star*, 23 March 1987) and SAPOA (cited in Hendler 1992 p.58), it represented a sea change: for the first time since Verwoerd's native affairs department had rejected municipal proposals for new African townships in 'white' territory north of Vereeniging, or where Olivedale is today in the northern areas of Johannesburg, official agencies were engaged in planning a major new black area in what the 1981 Spatial Strategy had called the 'heart' of the PWV. Already, informal settlements such as Zevenfontein had demonstrated need and demand in the area. It was not too long before such changed planning perception would become official reality in the form of Diepsloot. Meanwhile, however, both other planning processes continued, and the political situation reached boiling point, before significant shifts in power brought about the beginnings of a different dispensation.

5.3 Road planning revisited: TPA roads in the eighties

The PWV Consortium had produced its grand and intense network concept for the region's roads between 1975 and 1979, and essentially the same grouping pursued review and some revision in subsequent years. An interesting difference in new work conducted in 1980 was choice of a larger study area, now extending to Witbank in the north east. Although this went beyond the confines of the emerging Region H, it included the bantustan areas north of Pretoria and its neighbours, indicating that the same tendencies affecting general spatial planning were felt in the transport sector too. (TPA Roads, 1980). The eighties were a decade of greater financial constraint, however, and the material impact was less dramatic than in previous decades. As the consortium continued through mid-decade, it held that its previous spatial concepts were appropriate: 'the socio-economic and land use projections of the 1985 PWV study constitute a regional framework for future metropolitan and urban investigations of the area …'. Among its fundamentals – just like the 1981 Spatial Strategy – was that a large part of the black population would remain in the 'reserve' areas to the north, with consequences for future spatial investment patterns:

> *It will … be expedient if new job opportunities could in future be located as close as possible to the areas where residential development for especially Non-Whites [sic] will take place. In view of this and the large demand for housing and job opportunities, co-ordinated planning in the PWV area is essential. The objective of this planning should be the creation of job opportunities and a healthy economic basis … and to streamline the administrative procedures as far as possible.' (TPA Roads Branch, 1985. p. iii).*

This work was aimed at 'design year 2000' and the revision tried to foresee matters as far ahead as 2010 and even 2025 – a forty-year time horizon. In doing so, the pressures of the national situation seem to have made themselves felt, for the report noted that its '2000, 2010 M1 and 2025 models were based on an orderly pattern of urbaniszation, whilst **2010 M2 investigates faster, less orderly urbanisation after 2000** …' [emphasis added] (p. ii).

A key element of the modelling was the Consortium's conclusion that 'the [planned] PWV road network … can generally satisfy the future road transport needs of both private and public (combi's [sic] and buses)

transport and can handle changing socio-economic factors …' For the first time since private consortium road planning began in the 70s though, the 'study' suggested on the basis of its modelled results that:

> *... Long term traffic volumes are enormous … Mass transport (rail) will have to be relied on to supply a line-haul service whilst road transport will fulfil a feeder and distribution function … There is already a backlog in the development of the rail system … The envisaged comprehensive investigation [of public transport] should enjoy high priority … (p. 15) township to city railway capacities will need to be 'doubled in the next 20 years' e.g. Mamelodi, East Rand …*

Finally the report concluded that 'The urbanisation process will continue in the PWV area and will probably take place at a faster rate in the future (model 2010 M2). An increase in the rate of urbanisation of especially the black population will lead to less orderly development than that indicated by the current trends (model 2010 M1) … the increased population pressure and higher unemployment may lead to less government control and consequently to a **bigger concentration of population and job opportunities around the centre of the PWV area**.' (p. 32)

Intriguingly, therefore, both the guide planning process and the road planning process converged around the notion that the approximate geographical 'centre' of the PWV would increasingly emerge as the site of focus for the future. The controversial 'Norweto' proposals to plan for black population growth in that 'centre' can therefore be seen as responding to, and trying to control, just those spatial shifts.

During the eighties the growing spatial planning contradiction sharpened, between development in the 'homelands', and growing population and indeed investment, in the 'prescribed areas' within the PWV. 'Township developers sometimes prompted residential development towards spaces outside of – but contiguous with – those delineated by the planning system; … land invasions and the near-spontaneous erection of informal settlements in the prescribed areas' added to the effect (cf. Hendler, 1988. p. 24-27). Areas such as Diepsloot and Orange Farm as well as numerous spaces adjacent to existing townships evidence the results.

Yet the challenge in the townships continued. The Bantu Affairs Administration Boards, renamed 'Development Boards', came under provincial oversight as a component of the Botha reforms. The costs of rent and service charge boycotts thus became a direct threat to provincial ability to manage the region. The bankruptcy of limited reform combined with centralisation of control was increasingly revealed. In this context the palace revolution of 1988 brought FW de Klerk to power, and his allies rose to prominence in the province. The stage was set for negotiation as a new strategy to resolve the crisis (Lee and Schlemmer, 1991). In that context long standing conceptions of the region then named PWV would experience rupture – but with important continuities.

5.4 A period of flux

The *ad hoc* process of adding land to the African townships passed into the hands of the provincial administrations as they absorbed the functions of the Bantu Affairs Administration Boards and their successes. In an attempt to step back and take a broader view of land for this purpose, the Department of Constitutional Development and Planning appointed a Working Group of planning consultants to advise on a coordinated, 'PWV' scale approach to this question. This action can be seen as the last official, late-apartheid planning conducted at regional scale for the PWV; its central methodology was to calculate

expected areas of land needed for segregated black settlement under different scenarios of population growth and to seek large tracts of land which would suffice to house the growing black population essentially within the existing parameters of segregation and low density. The working group's report confirmed recommendations which were emerging from provincial authorities at the time for areas such as the Alexandra 'far east bank', Orange Farm, and the area west of Atteridgeville/Saulsville to be deemed 'black settlement' areas; and it identified some new areas in localities such as Zuurbekom and south of Vosloorus, to be added to the land available for African residence under relevant law – mainly the Black Communities Development Act. In some cases these allocations of land resulted in the establishment of new 'orderly settlements' of a partly-serviced, informal nature – such as Ivory Park adjacent to Tembisa and Zonkezizwe close to Vosloorus (PWV Werkgroep, 1988). Planning along these lines had significant results in a number of large settlements which formed extensions of existing African areas, such as Rietfontein adjacent to Orange Farm, Wildebeestfontein and Evaton; but the underlying philosophy remained allocating land on a racial basis. That philosophy was severely undercut by developments from 1989 onwards.

Alternative conceptions of the future of the PWV began to be produced in a number of circles, perhaps partly in response to the Werksgroep proposals. Planact, an NGO serving many civics in emerging negotiations, commissioned Van der Schyff, Baylis, Gericke and Druce town planners to produce a view on the 'PWV'. The Urban Foundation commissioned a number of planners to produce documents on the nature and future of cities. Among those was a report by Durban-based regional planner Peter Robinson, which conceived of the PWV along lines similar to those of the 1988 Werksgroep, but concluded that key trends such as continuing black empowerment, growth of truly informal settlements, increasing concentrations in inner zones and substantial post-group-areas population movement would alter the conditions of life and indeed of development substantially over the following twenty years (Robinson, 1989).

Unfortunately these creative documents – which sought to break decisively with the racist basis of planning – were not widely circulated, and had only a limited impact on popular conceptions and broader debates on the future of the region.

A more dramatic development was the emergence of negotiations between statutory and non-statutory bodies over the future of urban areas, which arose in most cases from the immense financial and other problems surrounding the black local authorities which had been set up in the early eighties. Among the areas where such negotiations emerged from 1989 to 1992 were the central Witwatersrand (involving greater Soweto), Alexandra and adjacent areas, the Vaal Triangle, and greater Benoni. By the end of 1991 it had become apparent that the results of the 1988 PWV Werksgroep investigation were not acceptable to the non-statutory bodies involved in these local negotiations, and proposed new 'black' zones such as that at Rietfontein were placed on ice. Where the provincial administration did forge ahead, though, was with the large area called Diepsloot north of Sandton, in the context of growing informal settlements north and northwest of Johannesburg. Diepsloot was expropriated by provincial government in 1992 (Harber, 2011. pp. 9-17), and despite challenges rapidly turned into something much more real than the 'Norweto' proposed 6 years before. This was a highly significant change, for although it remained a racially conceived idea, it certainly introduced legitimate black settlement in the 'heart' of the PWV on a completely new scale.

Repeal of two key Acts during 1991 forced at least some rethinking on the spatial development of the PWV. The Repeal of Racially-Based Land Measures Act removed most of the Group Areas and Black Communities Development Acts; replacement of the Physical Planning Act removed the guide planning powers of the central government and proposed structure planning powers at provincial or regional level – something never actually gazetted. Reflecting the shifts, the government department newly responsible for planning, which became the Department of Regional and Land Affairs in 1991, prepared a new document for comment covering the PWV and released it early in 1992.

It is hard to recapture the conceptual difficulties which must have faced many planning professionals and others, faced with the disappearance of the number one framework – racial classification – for contemplating spatial futures of the cities and their surrounds. For decades guide plans and other documents had revolved around the colour of swathes of land for future development – along with highway routes as powerful structuring elements.

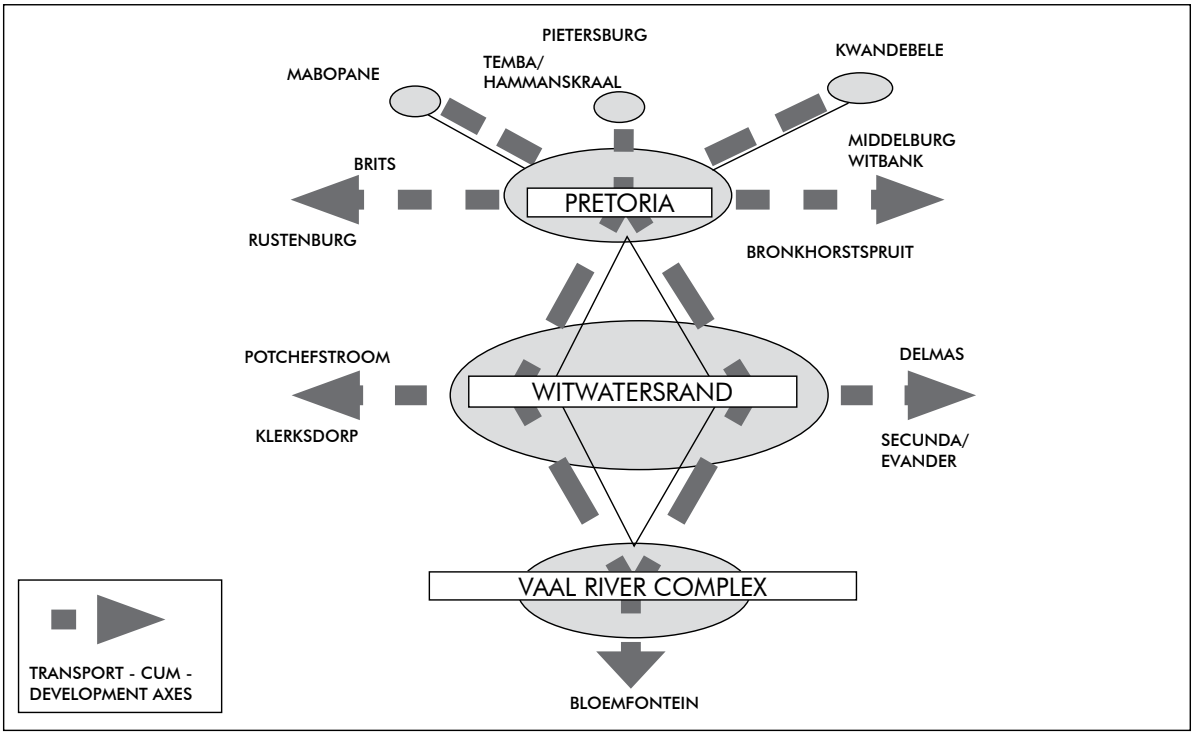
One response was apparently easy: to reconceptualise a region's future in terms of broad patterns of residential land use on the part of 'low income' and other 'groups' instead of 'blacks' and other (racial) groups. In at least one case, a report which had been prepared on land for *black* housing literally had *low income* housing labels stuck onto its cover and pages over the previous *black* (see documents in Wits Historical Papers, Mabin, A3025).

5.5 Reconceptualising PWV in the negotiation era

The gradual emergence of the idea that the 'heart' or core of the PWV, vaguely conceived as lying between Johannesburg and Pretoria, held keys to the city-region's future has been remarked upon above. It presented itself from the Spatial Strategy of 1981 to road planning of the 80s. Those tendencies found more explicit expression in a 'Draft Spatial Framework' of 1992 (Department of Regional and Land Affairs, 1992). This last old-regime plan for the PWV recognised the fact that forced decentralisation was costly and largely ineffective, and recommended that helping efficient development to take place in the core areas of the PWV would be the most effective development policy. The focus of concern was thus dramatically recast to centre on the means of supporting such development through the provision of sufficient 'well-located' residential land and appropriate infrastructure, rather than emphasising the outward growth of the extremities of the region.

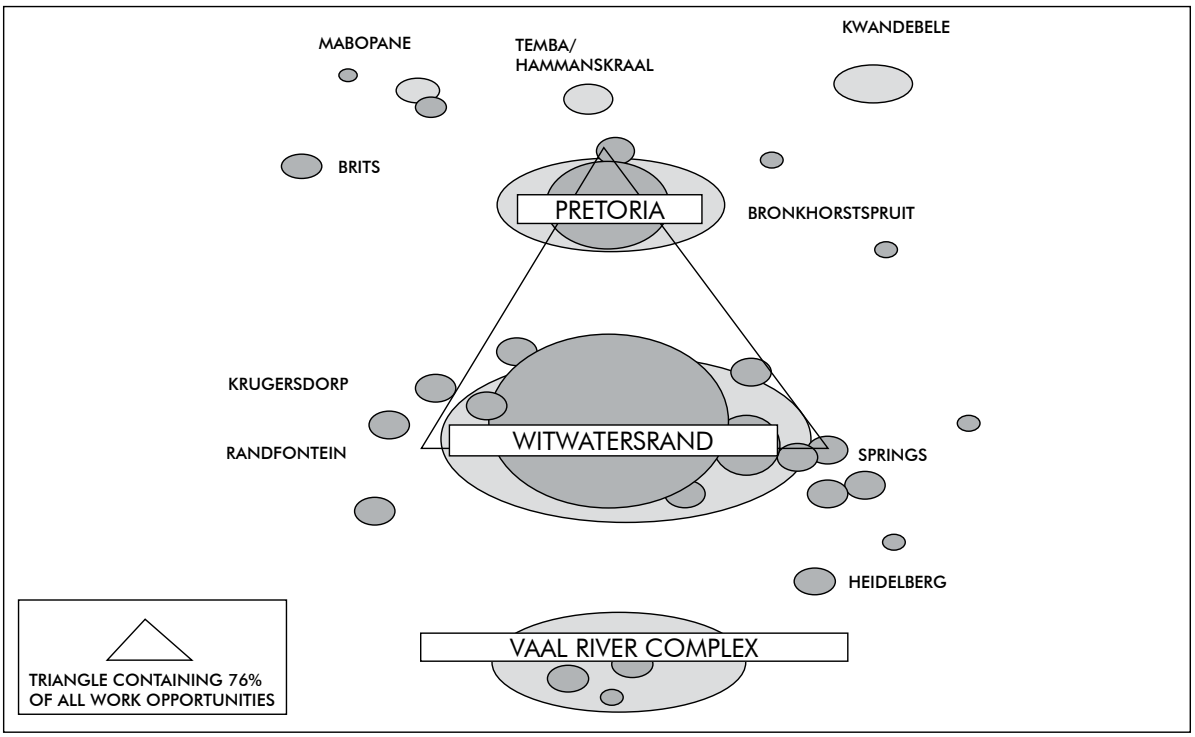
While the overall spatial structure of the region understood by the planners followed the model of multiple east-west and dual north-south axes with branches into the northern bantustan zones, descended from the 1981 guide plan and earlier work (Figure 6), the key spatial concept introduced by this report was the notion of a 'triangle' of opportunity with its northern apex somewhere to the north of Pretoria and its southern base stretching along the mining belt from Krugersdorp to Benoni (Figure 7). The 'framework' argued that some 78% of jobs in PWV were located within this triangle, the implication being that policy should concentrate on bringing infrastructure, residential areas and other development into close spatial relationships with this triangle.

Figure 6. Attempting a new look: central government and PWV 1992



(source: Department of Regional and Land Affairs, 1992. fig. 2)

Figure 7. Recognising an area of intensity



(source: Department of Regional and Land Affairs, 1992. fig. 3)

However, the document's specific proposals fell short of the expectations raised by this shift, and came under severe criticism from a number of quarters, such as the Urban Foundation. Criticism pointed, amongst other things, to a lack of analysis of economic activity in the PWV and to an alleged failure to distinguish clearly between major subregional opportunities and problems within the region as a whole. Another section of the Department of Regional and Land Affairs, the Office for Regional Development was responsible for the publication of a further document in 1992, namely the volumes of its 'National Regional Development Plan' (NRDP) concerned with the PWV region, defined as Region H for the purpose. Data contained in these volumes provided a description of some of the broad elements of the economy in Region H, but did not assist to any degree with an understanding of the functioning of the economy. The strategy recommendations which emerged were simply derivatives of the national strategy, and lacked any PWV specificity.

Reflecting the emerging fashion of the time, not to mention redevelopment interests of the owners concerned, the Spatial Framework 'pinpointed centrally situated mining land no longer required for mining purposes for residential use by lower-income groups. The implication was that relatively poor African people should have access to what were previously White Group Areas in the inner city (Department of Regional and Land Affairs, 1992. pp. 6, 34; Hendler, 1992). However, the document emphasised that given the relatively high cost of land close to the urban cores, lower income groups would in all likelihood continue to be accommodated in more peripheral places, west of Soweto towards Randfontein for example (Department of Regional and Land Affairs, 1992. pp. 32, 36, 38); it was this which fed some of the critique. Some of these ideas could be found in the departing government's revised statement (early in November 1993) 'setting out government's viewpoints as a perspective in promoting the debate on the further development of the region' (Department of Regional and Land Affairs, 1993), but those made no real advance. Despite the new conception of the vitality of the 'core', the implication was that new residential development would 'by and large reflect ... those mapped out in the guide plans for these areas' (Hendler, 1992). Thus a more decisive break would be required before PWV could begin to escape from the comprehensive segregation imposed in the fifties.

Efforts towards that break characterised various local negotiating bodies between 1990 and 1994. As formal apartheid ended, different tendencies in conceptualisation of present and future jostled for attention, with significant contradictions between them.

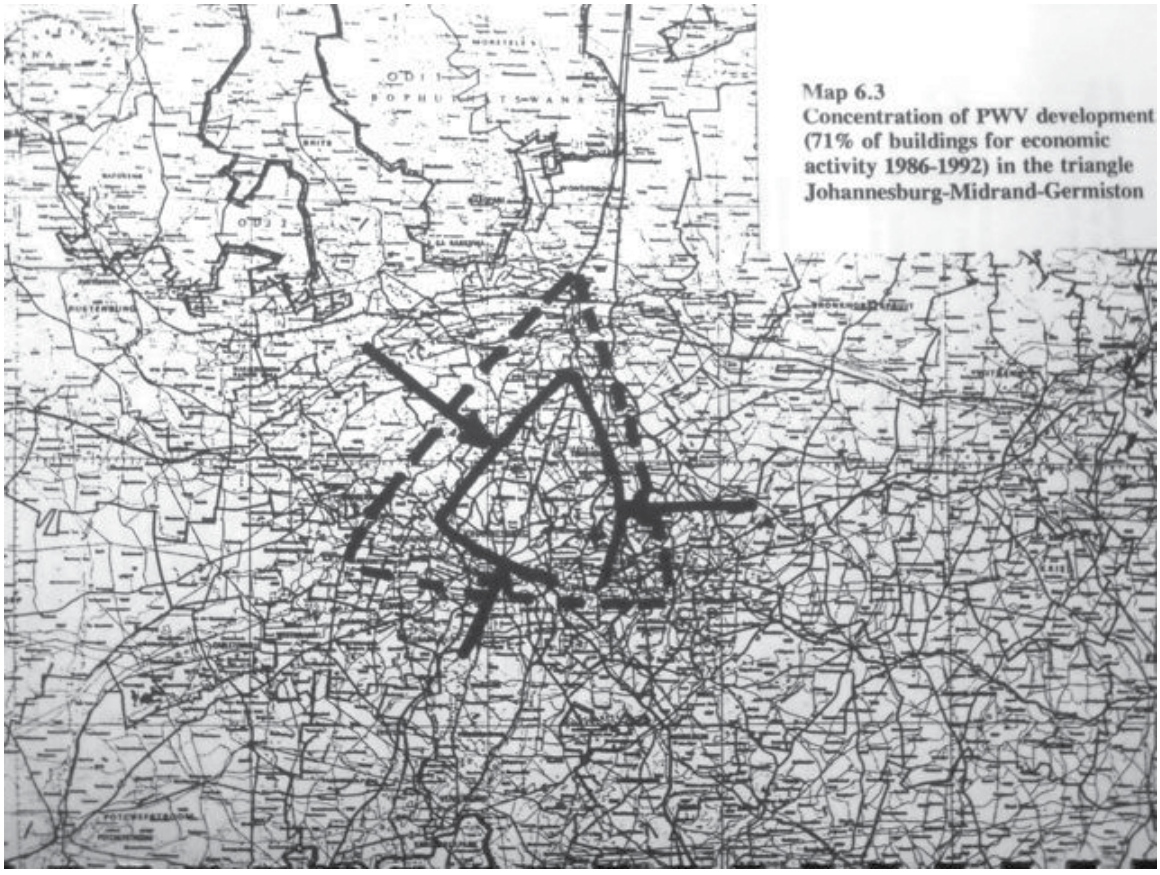
Drawing together civics with provincial administration and municipalities, the Central Witwatersrand Metropolitan Chamber (CWMC) tried to address comprehensively the future of Johannesburg and its surrounds. In its debates over land for housing, it commissioned a Land Availability Study in 1992 (CWMC 1992); and that led on to an 'interim strategic framework' (CWMC, 1993; Mabin, 1995, 1999): whilst the areas contemplated in these documents were more like much enlarged versions of then-Johannesburg than PWV in scale, their impact was substantial at least in widening acceptance of new ways of thinking about the region. Key elements included opening thinking about much more black population growth in more central parts of PWV and the introduction of concepts of corridor development and greater density, ideas which have long pedigrees but which had been singularly absent from most spatial conceptions of the region over many decades.

But where change was evident in some cases, continuity can also be identified. Thus the PWV Transport Consortium (1991-93) reviewed road plans – but it would be hard to identify any radical shifts in its thinking: rather, it again confirmed its belief in the appropriateness of the road network largely planned in the seventies. The emphasis in all these processes and documents was spatial or physical planning,

including transport planning; a greater concern over economic development did begin to emerge, but little was done in the way of preparation of economic development strategy for the region. Nonetheless, tension around work initiated by CWMC as well as the lacuna on economic development led the CWMC to initiate discussions towards a PWV-scale planning forum during 1992.

The result which emerged was a 'PWV Forum', based on political parties, unions, civics and a smattering of other organisations including business. Facilitated by the Consultative Business Movement (CBM) as with contemporary national negotiations, the forum's major product was a draft document analysing the economic as well as spatial situation in the PWV, and making some broad recommendations for the future. The report (PWV Forum, 1993) noted that the region had become 'significantly more internally integrated' over the decades. It picked up the spatial framework of 1992 (Department of Regional and Land Affairs, 1992) conception of a triangle 'of opportunity' – but indicated that the real core of the region was much smaller than the view of the departing national government, and perhaps 'shrinking'. This smaller triangle (roughly mapped, Figure 8) stretched only to the centre and south east of Pretoria, the northwest and north of Johannesburg and the nearer east rand (based on data for building activity to house 'economic activity' between 1986 and 1992, calculated from available data as including 71% of all such activity). It asked the question 'are there ways of intervening in transport investment and other forms of spatial planning to stimulate economic growth?' It also indicated a need for openness on the issue of how 'renewed growth' would relate to the spatial structure of the region and noted contradictory tendencies at work, including simultaneous intensification and sprawl (pp. 189-90).

Figure 8. A smaller conception of concentration, 1993



(source: PWV Forum, 1993. map 6.3)

The PWV Forum was suspended (as an epiphenomenon of national political developments) late in 1993 and the draft report was shelved: it did play a role in informing new government actors as provincial departments were set up in 1994, but other exigencies emerged and it would be hard to discern a direct relationship between recommendations in this document and actions of the new provincial government. Moreover new interim municipalities were established from 1995 (to be reorganised in 2000) and creation of four metropolitan councils (under the interim arrangements, these were Pretoria, Kyalami including Midrand and Kempton Park, Johannesburg, and the Vaal area).

Even in the physical or spatial arena, for the PWV as a region or for the relationship of its subregions to one another, no agreed conception existed or emerged, let alone development strategy. And new political forces would map themselves onto the existing arrangements and perceptions. The consequence was that the break required to achieve deeper levels of change in organisation and opportunity, would remain rather elusive.

6. Towards post-apartheid spatial concept and form in Gauteng? The first ten years of democracy

6.1 From creation of the province through GSDF to the global city-region

As South Africa moved towards a new democratic dispensation between 1991 and 1993, the creation of a new state, province or region covering something like the territory of the PWV was not uncontested. Nor were the boundaries of such an entity unanimously agreed once the idea of a 'PWV' province moved towards acceptance. The vehicle through which the issue of 'regions' reached resolution was the Commission on the Demarcation/Delimitation of States, Provinces and Regions, reporting to the Multi-Party Negotiating Process which convened in March 1993, after the breakdown of 1992. The Commission had only six weeks to reach its recommendation from its appointment in May 1993, and was supported by a technical support team which drafted proposals. For the PWV area, three major different concepts presented themselves among political party proposals and hundreds of other submissions. These were (1) four provinces for the interim period until a constitutional assembly created a new constitution with the incorporation of bantustans ('homelands') into those provinces; the PWV would be part of the much larger Transvaal with Sasolburg in the Orange Free State; the PAC and, initially, the ANC made this proposal. (2) Division of the PWV between various other regions, in particular so that Pretoria and its surrounds would be separated from Johannesburg and areas to the south – supported *inter alia* by the argument that rugby and other sports were similarly regionally divided. (3) Using development region H intact or slightly altered as one of 8 to 10 or more new states or provinces.

According to two members of the Commission:

> *… the majority of submissions took the nine development regions as their starting point, the Commission (after heated debates) took this as a point of departure … Arguably, the agenda for drawing the initial boundaries was set by the imperative to create conducive conditions of capital accumulation, the task spearheaded by the Development Bank of Southern Africa (Muthien and Khosa, 1995. p. 312).*

Once the ANC agreed to the notion, the development regions became the basis of a new provincial map, and region H the foundation of a PWV province including both Pretoria and Johannesburg, much smaller than the Transvaal. Here a 'functional' idea of the region emerged as a powerful guideline: for 'an immediate problem would arise with … the impact that unbundling [the PWV area] would have on the 'golden goose' itself' (Muthien and Khosa, 1995. p. 312).

Adoption of the idea of a single 'PWV' province, to be renamed Gauteng later in 1995, did not solve the question of its boundaries. Some parts of Region H were excluded: with the adoption of the Vaal river as southern boundary of the PWV, Sasolburg 'remained' in the Free State province. The most contentious issue became the fate of areas of bantustans included in Region H such as Odi and Moretele districts in former Bophuthatswana, including such major population centres as Mabopane and the Winterveld; and the former KwaNdebele districts north east of Pretoria. The principle of keeping each bantustan's

fragmented areas within single provinces became more important than functional ideas of regionalism, with the result that the emerging PWV province 'lost' those parts of region H to neighbouring areas (now North West and Mpumalanga). Some of the most densely populated parts of those districts were redemarcated into Gauteng province in 2009, after being portions of a 'cross border' municipality for several years. The question of how closely the political boundaries of Gauteng matched the functional shape of the developing urban region remains in question.

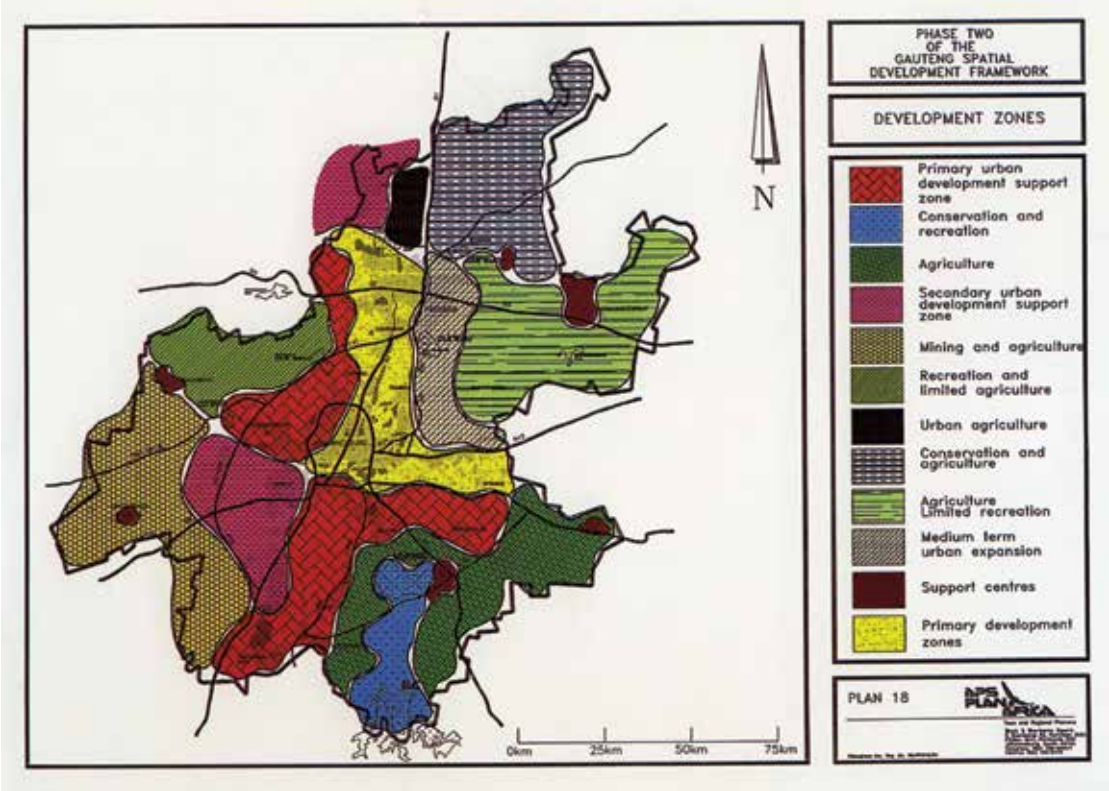
The new 'PWV' provincial legislature was elected alongside national government on 27 April 1994 in South Africa's first non-racial elections. Assembling in May 1994 for the first time and electing a premier who then appointed an executive, the province presided *de jure* over no powers at all, since *all* powers were absorbed from both bantustans and from provinces into national government until being reallocated to match the constitutional powers of the new provinces. In these circumstances it is hardly surprising that the new province took some time to get going. Its MECs were mostly politicians without government experience, naturally: except that in the coalition model which lasted for two years and reflecting roughly the proportions of the vote gained by parties in the election, there were National Party members as well as ANC. From a spatial planning perspective one of the most significant portfolios went to a powerful former TPA official, Olaus van Zyl, perhaps guaranteeing that previous transport planning processes would continue with long lasting effects. Instability characterized the organization of spatial planning and local government oversight within the provincial government for some time.

Despite its weaknesses, the new Department of Development Planning sought to commission a spatial view of Gauteng appropriate to democracy. Lacking the capacity to conduct the work itself, it followed the fashion of the day and appointed consultants to drive the work. The intention was to draw up a Gauteng Spatial Development Strategy, which would form a component of a Growth and Development Strategy yet to be developed. The process was intended to foster spatial integration of government activity, and was envisaged to take three years from 1996 to 1999, concluding as the second democratic election took place and just before the required 'final' organization of local government came into effect, in 2000.

While GSDF work proceeded, in 1996, what had become Gauteng's Provincial Government led a new province wide initiative known as 'Vusani Amadolobha – A Four Point Plan for the Regeneration and Integration of Cities, Towns and Township Centres'. The plan addressed the relative decline of older city centres, especially in Johannesburg and Pretoria, but also in Germiston and elsewhere. The four 'points' were to 'Promote Clean and Safe Centres; Foster Compact Development'; Encourage Vibrant Commercial Centres; and Build Regeneration Partnerships'. This represented an attempt to address areas neglected in many previous planning approaches – city centres as well as townships – the former having been assumed to be able to take care of themselves, and the latter at best benignly neglected as purely residential spaces with insubstantial formal employment and investment. An integration and coordination theme ran through this approach, which was based on interagency discussion and involvement of community and business organisations. After the departure of Tokyo Sexwale as first provincial premier, Mathole Motshekga was named Premier. During his short term in office a second Vusani Amadolobha conference was held in 1998, where he proposed local development committees to provide a 'highly organized and coherent system of inter-governmental programmes and structures for rapid development and social services delivery'. Frequent changes in personnel both political and appointed tended to undercut progress. In practice different initiatives seemed to multiply and to lack concrete integration with one another (Neil Fraser, *CitiChat*, 7 April 1998; *CitiChat*, 25 May 2007). A coherent view of Gauteng as a whole was slow to develop.

In this context the GSDF process continued, attempting to 'focus on the existing urban areas [which would] manifest itself in an "inward" spatial orientation to development to contain urban sprawl'. The optimistic view was that 'transportation linkages [would] play an important role in creating a dynamic and integrated spatial development pattern' (Gauteng Provincial Government, 1996. p. 57). The conclusion was a rather general map (Figure 9). The difficulties of this scale of comprehensive work were symbolized in the way the map and text effectively diverted attention from major growth taking place to the south east of Pretoria and especially to the northwest of Johannesburg: the former was mapped as a 'medium term urban expansion' area even though already receiving most private investment in the subregion; and the latter as a 'primary urban development support zone' – a fuzzy concept which appears to have been unrelated to vigorous and rapid change in an emerging new suburban space (Klug, Rubin and Todes, forthcoming).

Figure 9. Development zones according to the Gauteng Spatial Development Framework consultants, 1996



(source: Gauteng Department of Development Planning and Local Government, 1999. plan 18)

The key issues underlying the GSDF included 'relative isolation … of the lower income areas; spatial mismanagement of a potentially vibrant economy; and the generally insubstantial link between land use and transportation' (Gauteng Provincial Government, 1996. p. 47). By 1999 these objectives had been generalised to 'promote contained urban growth; enhance economic growth through enhancing key economic nodes; focus urban growth, stabilise/limit growth in economically non-viable areas and achieve growth on the land within the economic growth sphere; ensure preservation of rural areas and consolidation of tourism and agricultural activity; and increase accessibility and mobility' (Gauteng Department of Economic Development, 2009. p. 22; citing Gauteng Department of Development Planning

and Local Government, 1999). Tools to accomplish such goals remained largely undefined. The notion of the 'provincial economic core' as seen above, was a development of the 1992 idea of the area of most employment and investment; but the notion of this core remained rather fuzzy. It would be some years before the idea was picked up very powerfully indeed in transport planning, which, of course, continued in parallel with more general spatial planning work. Meanwhile, the latter work at Gauteng region scale remained weakly developed. The metropolitan councils continued spatial planning work for their own areas, with an acceleration after the creation of new metros in 2000 (new, unified and larger Johannesburg and Tshwane councils, and the incorporation of the East Rand municipalities into Ekurhuleni), but they found it extremely difficult to achieve objectives such as urban growth boundaries and planned densification. Private investment continued to elude municipal control.

Whilst the provincial spatial development framework may have languished, one apparently new and powerful spatial concept increasingly entered public discourse as democracy completed its first and tumultuous decade in 2004. The 'big idea' was the political representation of Gauteng as a global city-region – a polynucleated but singularly overwhelmingly urban zone, comparable with the major city-regions of the world, and requiring concerted effort to realize its (global) potential. Although the outline of the notion had a century old history since the establishment of the Rand Water Board, and staccato development through planning for comprehensive segregation, the notion of the 'Southern Transvaal region', the emergence of the 'PWV' concept and various forms of spatial planning (especially for major roads), in a twenty-first century democratic context the notion of the city-region held entirely new possibilities. Some of those would be realized, largely through a distinct form of planning, within only a few more years. The general spatial planning terrain would, perhaps, be altered fundamentally in this new environment. But it was, once again, the transport planning nexus which moved forward rapidly to bring about major spatial change.

6.2 Transport planning concepts from Vectura to Gautrain and freeway improvement

The transport landscape of GCR had been massively reshaped by freeway building in the 70s and 80s. At least as important was the rise of collective taxis. During the negotiation period, and reflecting some of the changes which came about in the Gauteng environment after 1990, the TPA Roads Branch had once again appointed a consortium of professional firms to update the 1985 roads plan between 1991 and 1993. A new departure was its particular focus on public transport in the region, motivated initially on the grounds that buses and taxis would be increasingly important road users. This work was conducted under the banner 'Vectura', and as in previous phases, given the prospect of shaping major infrastructure investments in roads and other facilities, its documents were highly relevant to conception of the region. The study area of the Vectura Consortium included all of Region H except the Carletonville area, and added space stretching to Witbank and Middelburg to the northeast.

Having largely confirmed and revised the 'PWV' and 'K' road network plans, Vectura turned its attention to introducing implementable proposals for enhancing public transport. To that end, the Vectura Consortium stayed with the long-established road planning concept of a focus on intra-metropolitan corridors rather than corridors within metropolitan areas 'as this responsibility was considered to lie with local government and as such did not form part of the PWV regional study.' Ten corridors were identified and analysed in terms of land use, available route capacity and transfer and terminal facilities.

Regional corridors were identified by taking the following corridor characteristics into account:

- *The volume of public transport person movements;*
- *The population density;*
- *The intensity of work opportunities;*
- *The regional function;*
- *The length; and*
- *The number of regional services council boundaries crossed.*

… The corridors mostly follow existing road and rail infrastructure, thereby optimising the use of existing and under-utilised transport routes (Vectura, 1994. p. 68).

By far the most significant component of this spatial conceptualisation was the identification of 'Corridor 3: Pretoria-Johannesburg … [which] is regarded as an important development area in the PWV, being situated between Pretoria and Johannesburg and containing residential land uses and a mixture of business, commercial and industrial activities … (pp. 91-2). In brief, the notion of the importance of the core of Gauteng region had penetrated into transport planning. Vectura's recommendations were far-reaching, even if stated in terms different in the early nineties from those which would later emerge as massively important to the spatial structuring of the GCR:

Corridor 3 … is one corridor where a high order public transport facility such as light rail, though expensive, could act as an important development instrument towards an improved urban spatial structure … **the potential exists to align a future light rail system so that it links existing activity nodes at both ends (Johannesburg and Pretoria) and in between, notably the Midrand and Verwoerdburg central areas** *[emphasis added].*

Noting municipal public transport planning happening simultaneously, the report added that the envisaged rail line in the core area 'should also link with the proposed Masstran system' in Johannesburg – a light rail or tram system seen as a substitute for a long-wished underground rail system planned in the early seventies (pp. 103-4). By contrast, very little indeed was said about the existing rail system – a tendency which deepened for the next decade or more.

With the shift of much of the old TPA roads branch into a new Gauteng Roads and Transport Department, which dubbed itself 'Gautrans', the new provincial government continued energetically to develop transport thinking in a number of directions, each with its own special conceptions attached – some of them spatial. One was the developing idea of investment to support public transport. Another was the corridor idea. And a third related to the existing freeway and major road network and its improvement and/or extension. By the end of the nineties, continuing work at Gautrans (and the new South African Roads Agency Limited – SANRAL – which replaced the NTC) had suggested that freeway improvements would require new forms of financing and had identified tolling most of the existing network as the means to that end (Gautrans, 1998), a development with not inconsiderable impact more than ten years later. From a spatial concept perspective, the interesting element is perhaps that this work implied that existing major roads would remain the main target of investment, rather than the massive network on the drawing boards for over twenty years at the time.

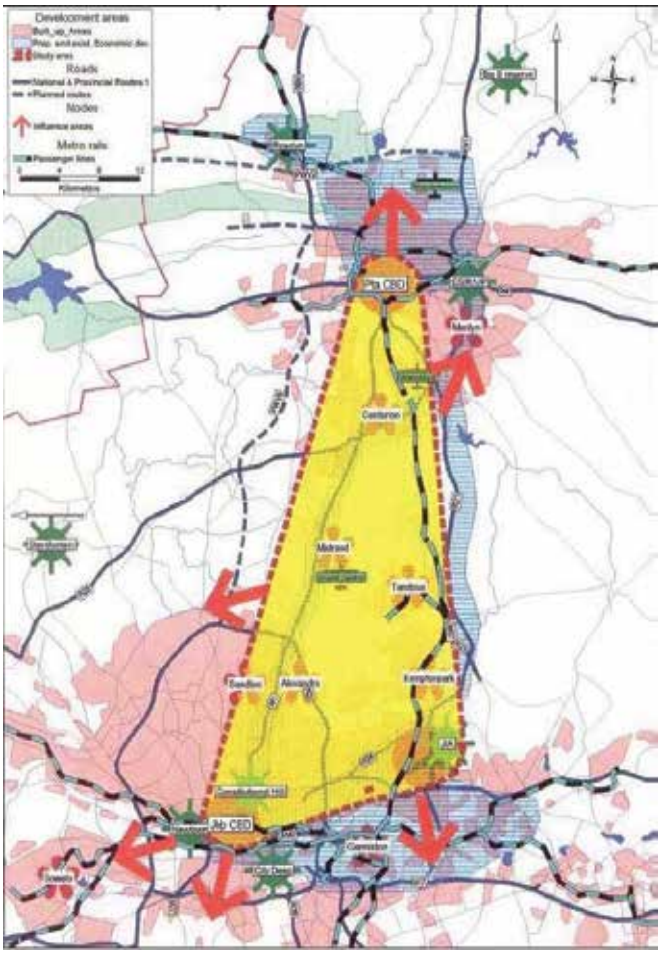
Transport planning had been closely informed by international developments and techniques from the 1950s. The diplomatic reopening of South Africa to the world allowed many government agencies to develop new relationships with and to draw on expertise from foreign sources. In Gauteng one of the more significant examples emerged as the Vectura notion of a possible railway between Johannesburg and Pretoria through Midrand gained traction:

> *When the first Premier of the new Gauteng Government visited Germany [in 1996], a Twinning Agreement between Gauteng and the State of Bavaria was signed. During the first meeting, the Gauteng Rail Link was identified as one of the first opportunities for co-operation. At a discussion late during 1998 between representatives from Gauteng and the Bavarian State Government, it was agreed that the Bavarian Government would appoint independent German consultants to undertake a Pre-Feasibility Study of this project … The main aims of the pre-feasibility study were to determine:*
>
> - *'whether or not the implementation of a new rail system in this corridor is justified and feasible', and*
> - *'whether further investigations on the basis of a comprehensive feasibility study need to be done' (Gauteng Department of Transport and Public Works, 2000. p. 7).*

The pre-feasibility study was completed during September 1999. New centralities – especially that of Sandton as a major economic node in the overall space of Gauteng, but also those of Midrand, the international airport, and indeed the often-neglected major city centres of Pretoria and Johannesburg – were long observed more in the breach than in public investment. These anchor points of the 'triangle of opportunity' at the heart of the city-region now received absolutely direct and favoured attention. The study concluded that:

> *Even the construction of a new toll road in this corridor (the PWV-9 road between Johannesburg and Pretoria, west of the N1) would not solve the transport problem for the future. It is, therefore, indispensable to complete the existing transport system by means of a public transport system that would be independent from the existing road network … As shown in the pre-feasibility assessments, Alternative 3 (a route from Sandton to Pretoria) is likely to yield coverage of the total operating costs and part of the investment costs of a new rail system by fare revenues … Taking into account the economic and environmental benefits accruing usually from implementation of mass transit systems in highly loaded corridors (savings in travel time, accident cost, private vehicle operating cost, air pollution, noise) the rough financial evaluation … indicates that in all probability the railway project is feasible in economic terms … Moreover the anticipated railway project would strongly support individual economic zones in the context of the Spatial Development Initiative …' (Gauteng Department of Transport and Public Works, 2000. p. 8).*

Figure 10. Gauteng rail study area map – 2000



(source: Gautrans, 2000)

The transport planners were now able to translate the 1994 idea of a new railway route into a context of national excitement about 'spatial development initiatives' and the prospect of substantial national government financial support. From a general, Gauteng-wide, spatial perspective, what is interesting about the view taken is its concentration on a yet-smaller triangle – that stretching from central Pretoria to central Johannesburg and JIA – illustrated in Figure 10. The report made the idea of the core of Gauteng explicit: 'The area between Pretoria and Johannesburg is one of the fastest growing areas in the country, and the potential for further growth is excellent. Additional transport capacity is urgently required, as is evident from the severe traffic congestion on the freeways and main roads passing through the area' (p. 2).

7. Some conclusions on the meaning of past spatial planning for the present and future of the GCR

This paper has demonstrated that concepts of a single region approximating Gauteng have diverse trajectories over at least a century. At various times those concepts influenced planning and development strategy. As growth occurred and the political, social and economic situation altered, the conception of the region has changed, and it has been contested.

From one period to another there has been both rupture and continuity in conceptions of Gauteng. Several themes emerge:

- Segregation as a key spatial structuring element, for most of the century seen in most documents as natural and normal despite its obvious travesty to all today
- Attempts at modernisation of space for new circumstances
- General approaches to space and spatial planning as distinct from, sometimes in opposition to, and generally weaker in effect, than roads and transport planning
- Recurring adherence to the idea of a space with several centres or one city-region
- A few ideas of spatial form exercise considerable power: thus the 'incipient diamond shaped structure' presaged by the 'Red Report' of 1957 reappears even in some current thinking (see for example Gauteng Department of Economic Development (2011). *The Gauteng Spatial Development Perspective (GSDF)*); the notion of the triangle of opportunity in the 'core' of Gauteng, frequently represented since at least 1992, continues to influence conceptions (as evidenced in Gautrain planning)
- The idea of the region as a 'member of the global metropolitan family' (NRDC, 1957), resurfaced over recent years in new forms.

The angle of view of those producing 'official' representations (and some unofficial ones too) of the space of Gauteng always, of course, influenced their conception of the region's form. Indeed, so did their personal positions and trajectories. A measure of such influences is standard. In Gauteng, relatively slim capacities available for conceptualisation have probably exaggerated individual and small group influences. An intriguing question may well be how much that couplet of influences persists today, and indeed how much it might obstruct creative new thinking. It is hard to better Paul Hendler's observation, after his thorough investigation two decades ago, even though conditions have altered significantly:

> *An understanding of the roles of bureaucrats, planning professionals and … business people could go a long way towards explaining the seemingly irrational and often incompetent aspects of the planning system in relation to grassroots needs. Particularly important were relationships between administrative clerks and planning professionals within the state planning apparatuses, and connections between private practice professionals and civil servants (Hendler, 1992. p. 72).*

The 'unabated zeal' (TPA 1973) of transport planning continues, and continues to have major effects. Separation between transport and other spatial planning continues, illustrated by the parallel paths of current GSDF work led by consultants, and land use modeling for the review of strategic roads network being undertaken by Gautrans and consultants. The 2011 GSDF report (2011. p. 77) says 'the view is that the Gauteng strategic road network (GSRN) has the potential to take the urban system in a direction that is incompatible with the spatial structure on which the GSDF is predicated. It is recommended that the scope of the GSRN review be extended to have a more integrated transport planning and urban structuring approach that is now embedded in the GSDF.' Authorities still face the challenge of reconciling these different approaches. Jeremy Cronin, deputy minister in national government, points out that 91% of trips by Johannesburg residents before 09h00 are within municipal boundaries, 85% in the case of Tshwane, and 89% in Ekurhuleni (Cronin, 2012), yet most public spending on transport in the city-region has gone to roads and rails connecting the municipalities and not within them – certainly, in my view, a large hangover from the past illustrated by the ease of travel home to Pretoria from downtown Johannesburg and Sandton on the Gautrain system and the daily massive traffic go-slow (as Nigerians would say) from south of Sandton to Soweto and beyond. Meanwhile past evidence suggests the likelihood that general spatial planning tends to be weak, and transport planning to be much more effective.

Some key issues remain unresolved in spatial thinking about the GCR. Will it be the core or periphery for poor people? There is still no really decisive break with past peripheralisation of poor (and mostly black) people, as demonstrated powerfully by research at the GCRO, though much has changed at least for some (especially in areas from Zandspruit to Diepsloot and Cosmo City to Olievenhoutbosch, not to mention extensive desegregation for many with better resources). It may be that new professional tools could contribute to rethinking space in the GCR – a beckoning example might arise through elaboration of the bid rent model in the recent spatial development framework prepared for Gauteng (Gauteng Department of Economic Development, 2009). Why not look at land values to map the structure of Gauteng – it seems remarkable that no past processes have done this in any significant way. It may also be that approaches to the durability or sustainability of urban environments could suggest new ways of thinking about the spaces of Gauteng, although such work remains relatively undeveloped so far.

Some of the conceptions of Gauteng's space today, in other words, originated in and/or are strongly influenced by those past conceptions. Such influence can be seen reasonably clearly in relation to transport and mobility thinking, as well as more widely, perhaps in more subtle ways. Absences of more diverse forms of analysis and theorization, lack of relationship between various conceptualisations, and strong lineages between past and present actors, appear to ensure that influences of past concepts continue.

Concepts of a city-region similar to what is now generally known as Gauteng or GCR were contested over the past 100 years as politicians, professionals and citizens took diverse perspectives. Those perspectives represented different understandings of the past and then-present nature of the city-region, and different views and aspirations for its future. This experience parallels those of many other city-regions in the world. It demonstrates that the question of the city-region – conceptually and physically – remains open and subject to debate. There are professional, public and political questions to explore – for whose concept of a major city-region predominates is very much a matter of power. Agencies that wish to influence directions of change in GCR might consider the ways in which they could generate new concepts and how those concepts could be positioned. Engagement with concepts of city-regions abroad and their histories appears a creative route to enriching conversations (and contests) over the idea of the GCR. Thus a range of spatial research subjects, many suited for example to doctoral studies, present themselves for consideration in the GCR today. As outlined above, such studies could include dynamics

of 'peripheralisation' of poor people; land value variations across the city-region and through time; more specific relationships between transport and land use planning and consequences; and comparative work raising similar issues across diverse city-regions in the world.

This paper has explored the story of spatial conceptualisation of Gauteng as a region over a century, from the British colonial period and the Rand Water Board, to the end of the first decade of democracy in the country. The paper shows that spatial images and concepts of Gauteng have always been contested. As a result of the alignments of political as well as professional forces, some concepts have predominated over others in different periods. Traces of past powerful conceptions are still with us today, despite the significance of change since the end of formal apartheid. The GCRO will be continuing to explore conceptualization of Gauteng in coming years, to which this paper forms a backdrop. Change will continue. And, every so often, conceptual continuities with Gauteng City-Region's chequered past will persist – as they have done repeatedly and in sometimes disturbing ways. Ruptures in concept will always be intriguing.

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