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Fundamentals

- Seven ZA Rand approximately equal to one US$ or 1000 Tsh
- Use general taxes for social roads
- Use the fuel levy for roads with a social and economic function
- Use direct user charging (tolls) for roads with a primary economic function
- Prioritisation is done through the HDM, with some investigation being done into the RED model

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‘Social’ Roads: Size of the challenge

Level of Service	All municipal Total		Class 3 Metro		Class 4 District		Class 5 Local (streets)		Class 6 Rural access roads	
	%	Length (km)	%	Length (km)	%	Length (km)	%	Length (km)	%	Length (km)
Paved double	3%	12,837	30%	5,835	10%	7,002	0%	-	0%	-
Paved roads	30%	116,311	70%	13,615	80%	56,016	60%	46,680	0%	-
Gravel roads	25%	96,642	0%	-	10%	7,002	30%	23,340	30%	66,300
Graded roads	42%	162,480	0%	-		-	10%	7,780	70%	154,700
Total length	100%	389,000	100%	19,450	100%	70,020	100%	77,800	100%	221,000
% of total	100%		5%		18%		20%		57%	

Note:
1.Provincial and national roads (Classes 1, 2 and 7) are excluded.
2.Figures for total road lengths are taken from the draft 'Road Infrastructure Strategic Framework'.
3.The split between classes has been made based on other sources but must be considered as rough estimates only to allow for preliminary numbers to be generated for modeling.

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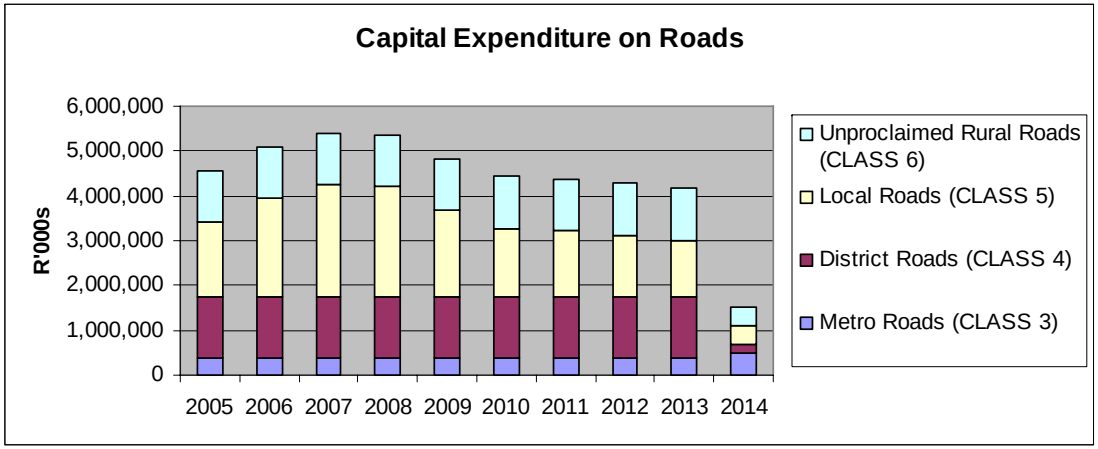
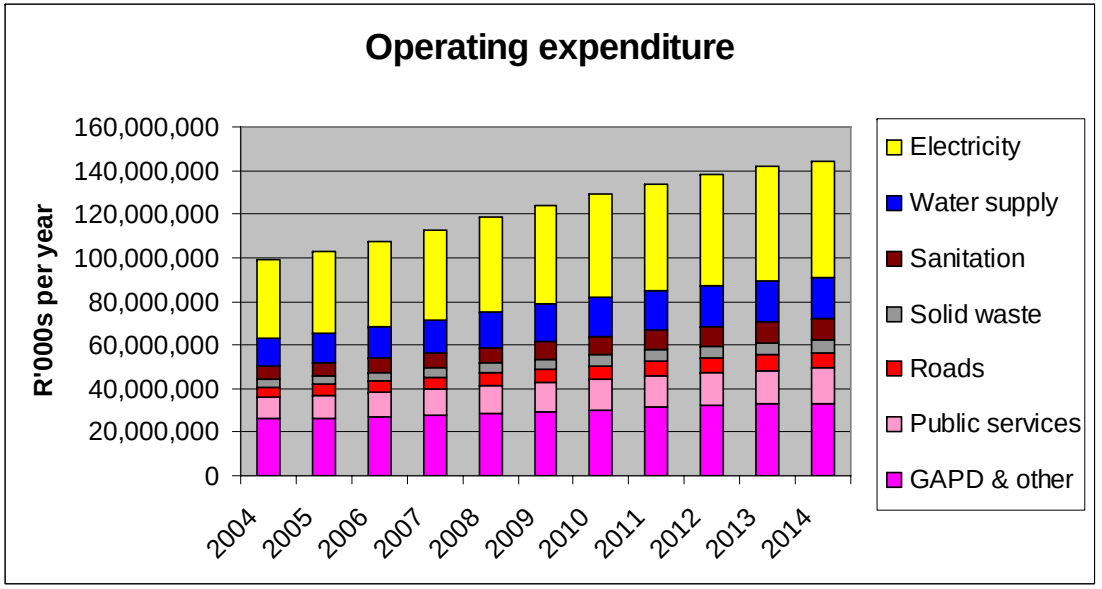
The Municipal Infrastructure Investment Framework (MIIF) proposals for 'Social' roads





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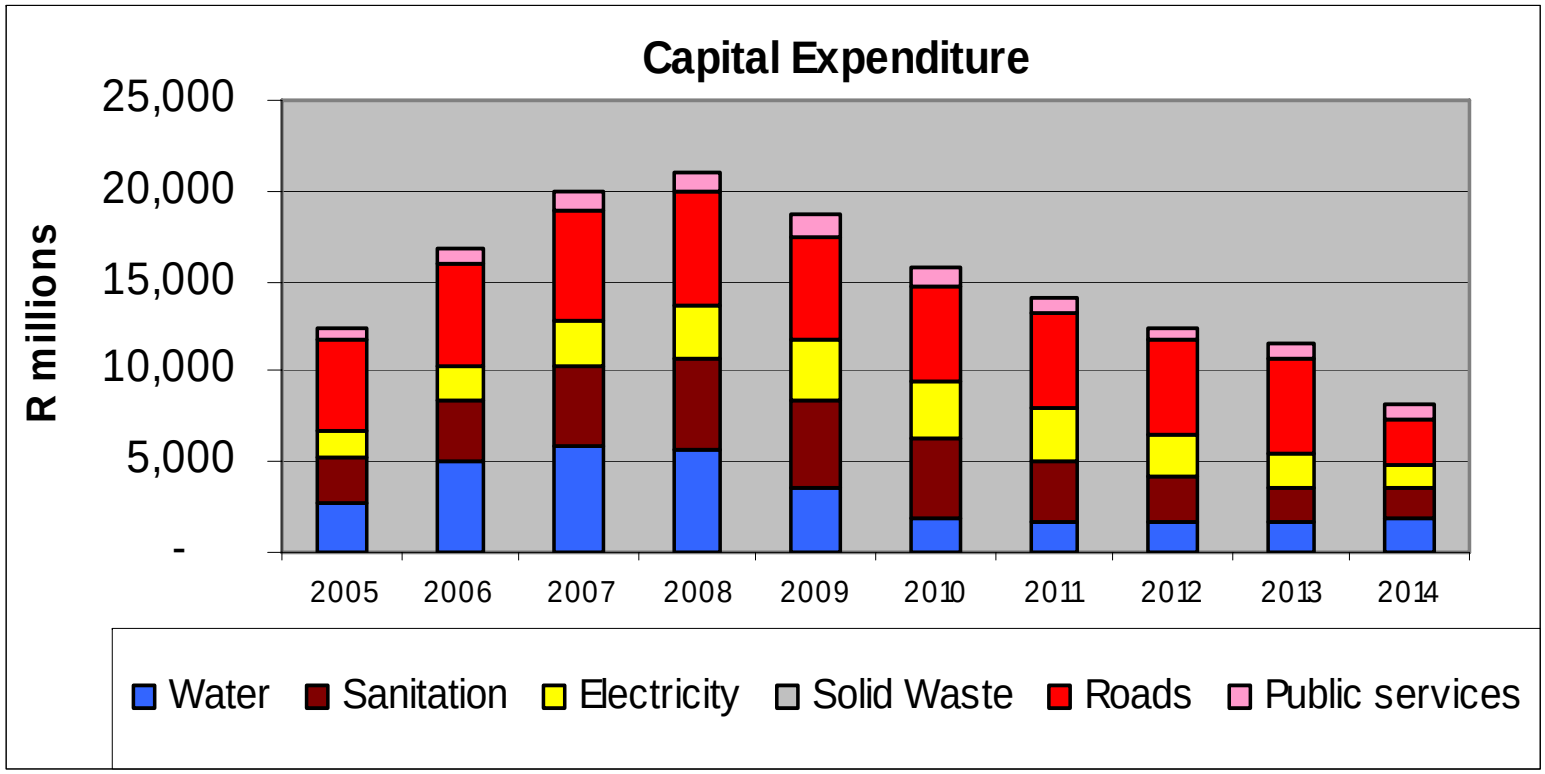
The Municipal Infrastructure Grant (MIG) for Social Infrastructure in general (competing alternatives)



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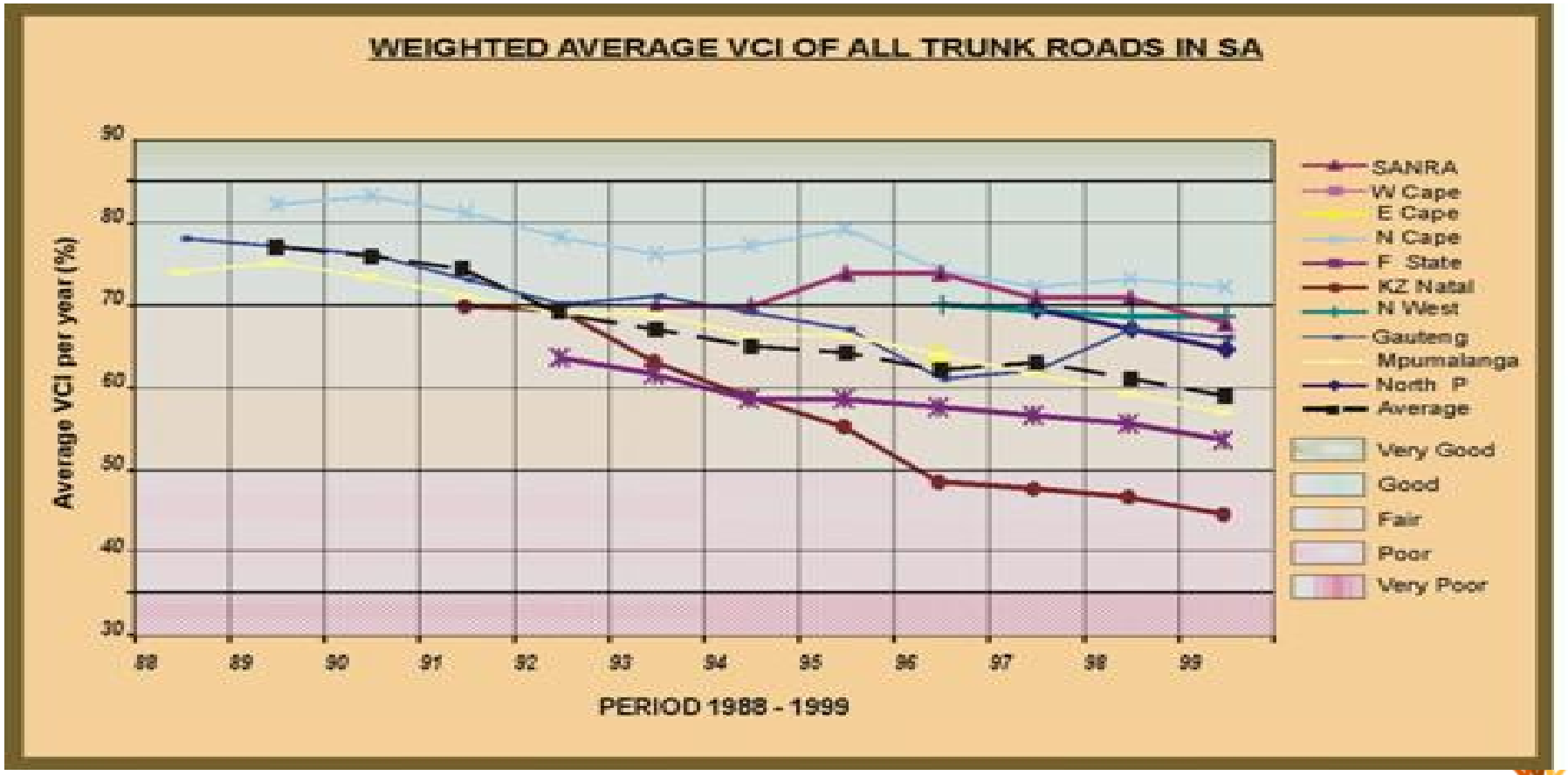
Condition of Roads Serving an Economic & Social purpose (generally provincial)



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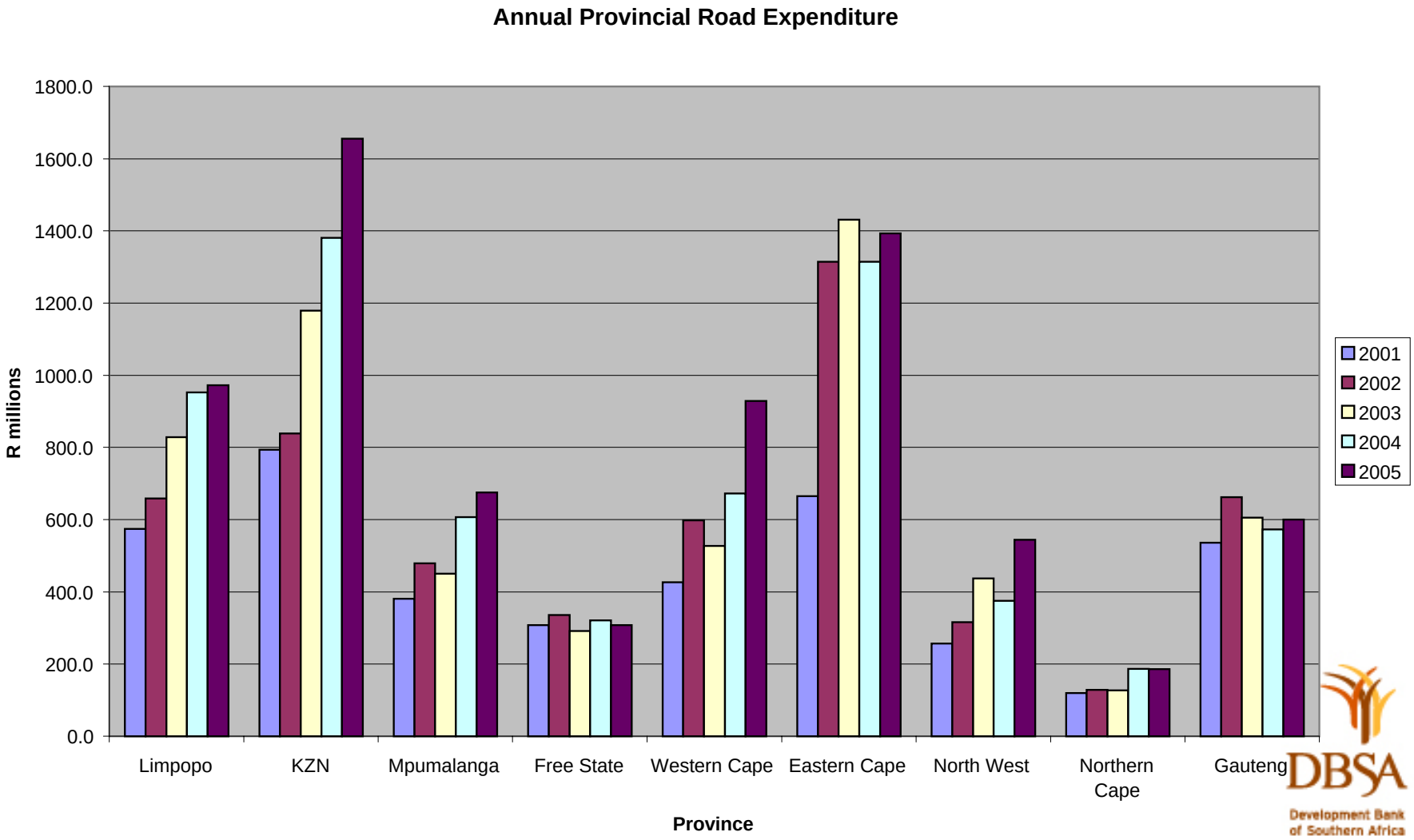
A provincial response (PIG)



The South African Fuel levy

- Approximately one third of the price of fuel (which is currently approx US$1 per liter), generates between 15 and 18 bn ZAR annually
- Of this approximately ZAR 5,5 bn goes back into roads (33%)
- There is an overall balance of transport revenue/ expenditure when commuter subsidy and fuel supply investments (SASOL) are considered
- From a national perspective it is very difficult to make the cake bigger from out of the general tax base, or from the fuel levy

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Advent of road tolling

- Recognition in mid 1970 of the need to toll
- First projects were high capital cost bridges and tunnels, funded from bonds issued by the National Road Fund (NRF)
- These bonds raised about ZAR1,5 bn of funding from local capital markets
- Moved the bar upward with the N3 (Durban) and N1 (Cape Town), increasing issued bonds to approx ZAR 4,5 bn
- These were in general 15 year bonds with repayment via tolls and the NRF (approximately R200 million each)

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Issues with the first generation of toll roads

- Users and NRF were only servicing the interest on bonds
- While tariffs could be raised at the rate of CPI, overloading remained an acute problem
- Situation clearly unsustainable
- This led to a second generation of concessions with guaranteed traffic over six month horizons
- In essence these were ‘shadow’ tolls

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Second generation of toll roads

- There is some anxiety in South Africa to shadow tolling as it requires fairly sophisticated monitoring
- Hence moved to third generation fully blown 30 year concessions
- Experience had shown that revealed preference is higher then expressed preference, hence there was a degree of confidence in that decision

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Comparison of first and third generation toll roads

First generation:

- Funding was easy to raise locally
- Tariffs were artificially low…
- but were acceptable to users
- Could raise tolls annually with CPI
- Overloading remained an issue
- Maintenance burden was still open ended
- No likelihood of shifting project funding on to the equity market of the JSE
- Ultimately unsustainable
- It was a legal requirement that an alternative route be available

Third generation:

- Still require considerable debt over twenty year periods (Equity: Debt 17:83)
- User 'revealed' preference was generally higher than 'expressed' preference (approx 20% higher)
- Closed financial systems
- Overload control became far more effective
- Reliant on traffic growth at approximately 1,5 times GDP growth to move past years 5 to 8 (financiers' requirement that DSCR is always > 1,25)

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Third Generation Toll Roads in South Africa

- Hence South Africa has funded the Maputo Toll Road (R1,4bn); N3 (R2,2bn); Bakwena/Platinum Toll Road (R3,3bn), all through national government, with Chapman's Peak (R100 million) at a provincial level
- General tariff is currently approximately ZAR 0,25 per km and ZAR 1,25 per km for trucks, increasing at 75% of CPI per annum
- This represents approximately US$20 per 100km for a truck (Annexure to the paper provides current actual toll levies in ZAR for the Maputo Toll Road)
- Viewed alternatively, tolls have increased the general cost of users of the national routes by approximately 8%

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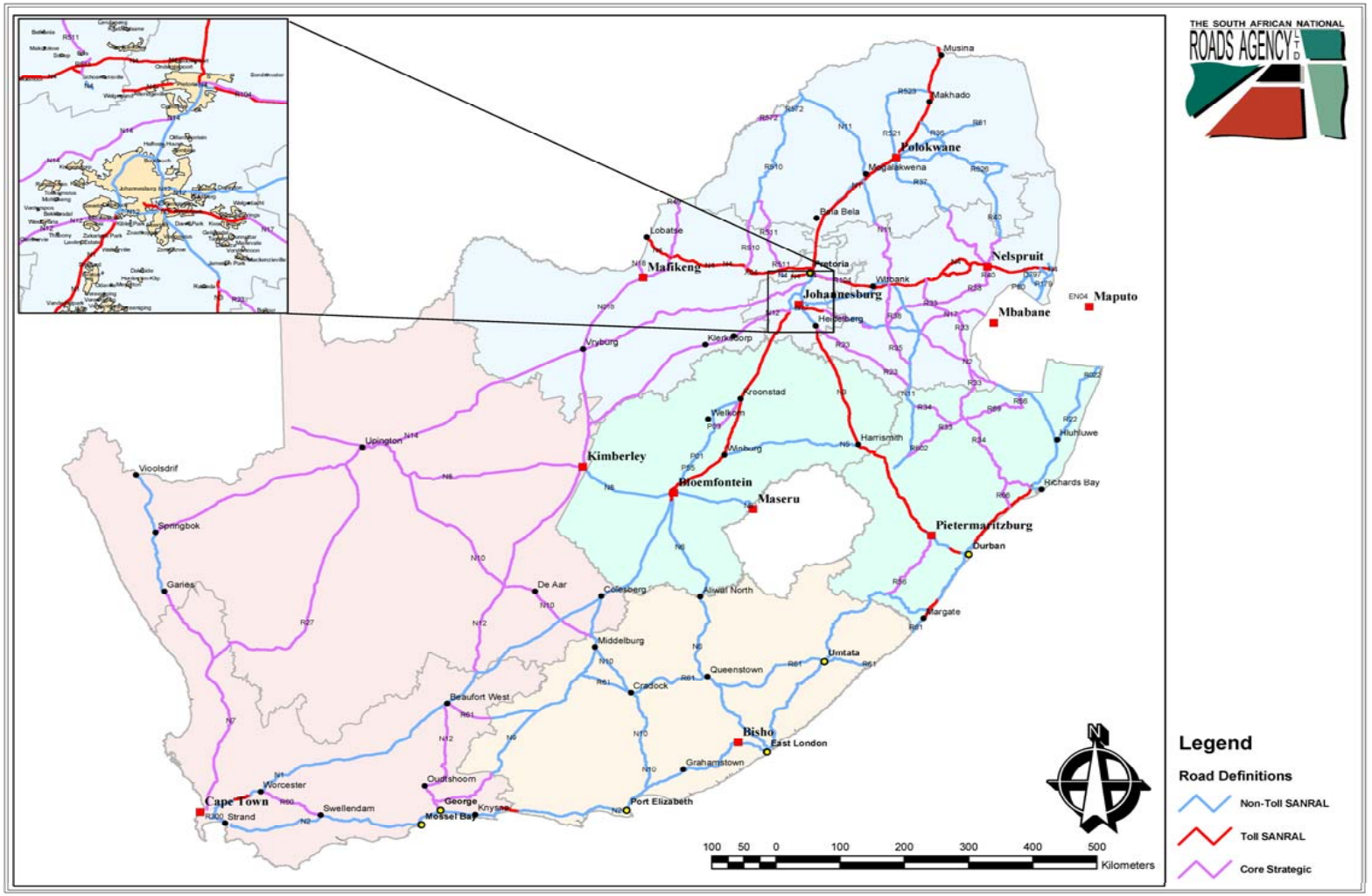
The current toll and strategic road network in South Africa



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A possible South African future

- Inevitable further development of toll roads, both out from points of economic concentration…and within them
- A possible shift into shadow tolls on roads serving a specific function (e.g. coal and timber haulage)
- A need to list projects on the JSE so everyone can share in the returns on equity
- A decline in sponsors coming from contractors and an increase in banks developing projects (e.g. Macquarie, RMB) for the resultant cash flows

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Some alternatives for consideration

- The South African 30 year toll road concession model requires >4 000 vpd AADT (approx 15% heavy) to make it work financially
- Most roads in Africa do not start at these levels
- Possibility to consider levying tolls on tonnage carried? And by type of freight carried?
- Could also look at shadow tolls, or tolling just for maintenance
- Fundamental of South Africa's strategy is that it has been long term in nature and is still evolving

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Private Sector Funding of Infrastructure in Emerging Markets

SUB-SECTOR	No OF PROJECTS	COST US$m	%
Power	28	5 706	46%
Telecoms	21	4 861	39%
Ports	9	222	2%
Pipelines	6	1 092	9%
Railroads	3	117	<1%
Water	2	362	3%
Roads	1	313	2%
		12 360	100%

SOURCE: International Finance Corporation - Financing Private Infrastructure Projects, at the peak

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An alternative to be avoided

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