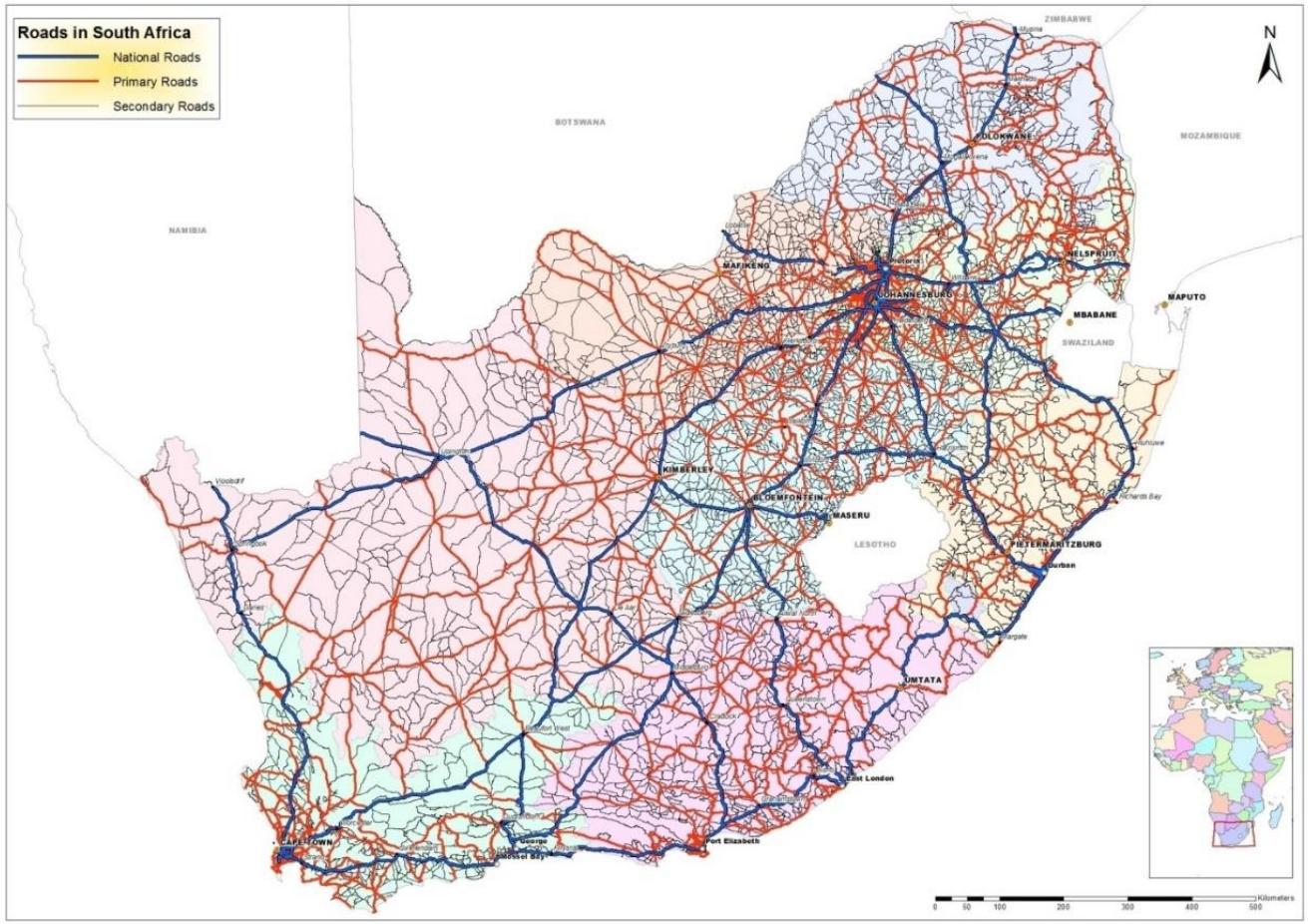
UPGRADING OF THE N3 FROM DURBAN TO CEDARA

Presentation to Msunduzi Municipality LED Forum – 14 October 2016

Creating wealth through infrastructure

DUDLEY MBAMBO (Pr Eng)
PROJECT MANAGER
SANRAL EASTERN REGION

THE SOUTH AFRICAN NATIONAL ROADS AGENCY LTD



- SA Road Network ≈750 000km
- 10th largest network globally
- Infrastructure Maintenance backlog

  ≈R 197 Billion

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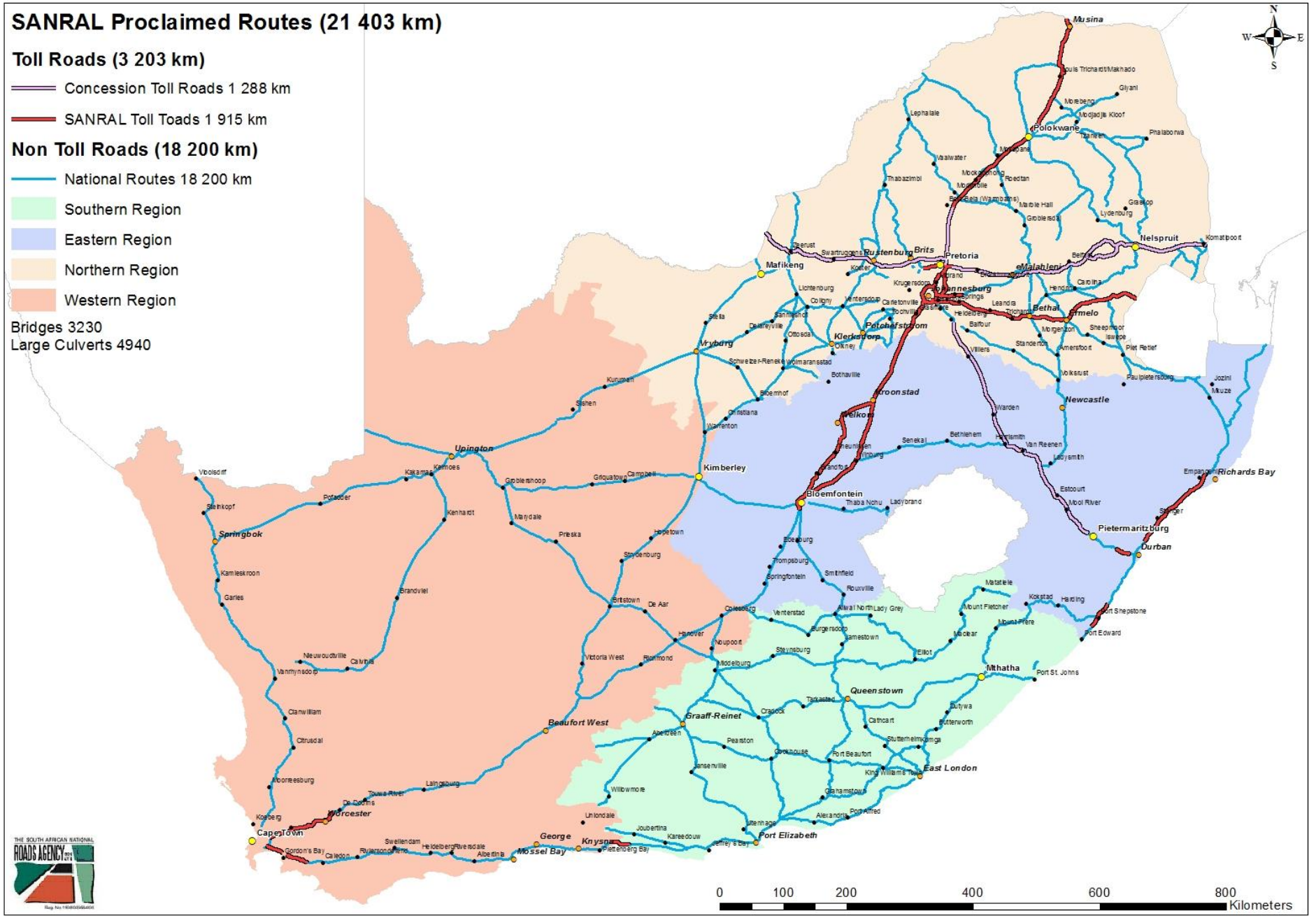
SANRAL Proclaimed Routes (21 403 km)
Toll Roads (3 203 km)
Concession Toll Roads 1 288 km
SANRAL Toll Toads 1 915 km
Non Toll Roads (18 200 km)
National Routes 18 200 km
Southern Region
Eastern Region
Northern Region
Western Region
Bridges 3230
Large Culvers 4940
N
W
E
S
Musina
Louis Trichardt/Makhado
Giyani
Lephalale
Polokwane
Phalaborwa
Thabazimbi
Mokopane
Roedtan
Marble Hall
Groblersdal
Nelspruit
Komatipoort
Rustenburg
Brits
Pretoria
Mafikeng
eMalahleni
Johannesburg
Bethal
Ermelo
Potchefstroom
Klerksdorp
Vryburg
Kroonstad
Newcastle
Welkom
Kimberley
Upington
Bloemfontein
Richards Bay
Pietermaritzburg
Durban
Springbok
Beaufort West
Graaff-Reinet
Queenstown
Mthatha
East London
Port Elizabeth
Worcester
Cape Town
George
Mossel Bay
Knysna
0
100
200
400
600
800
Kilometers
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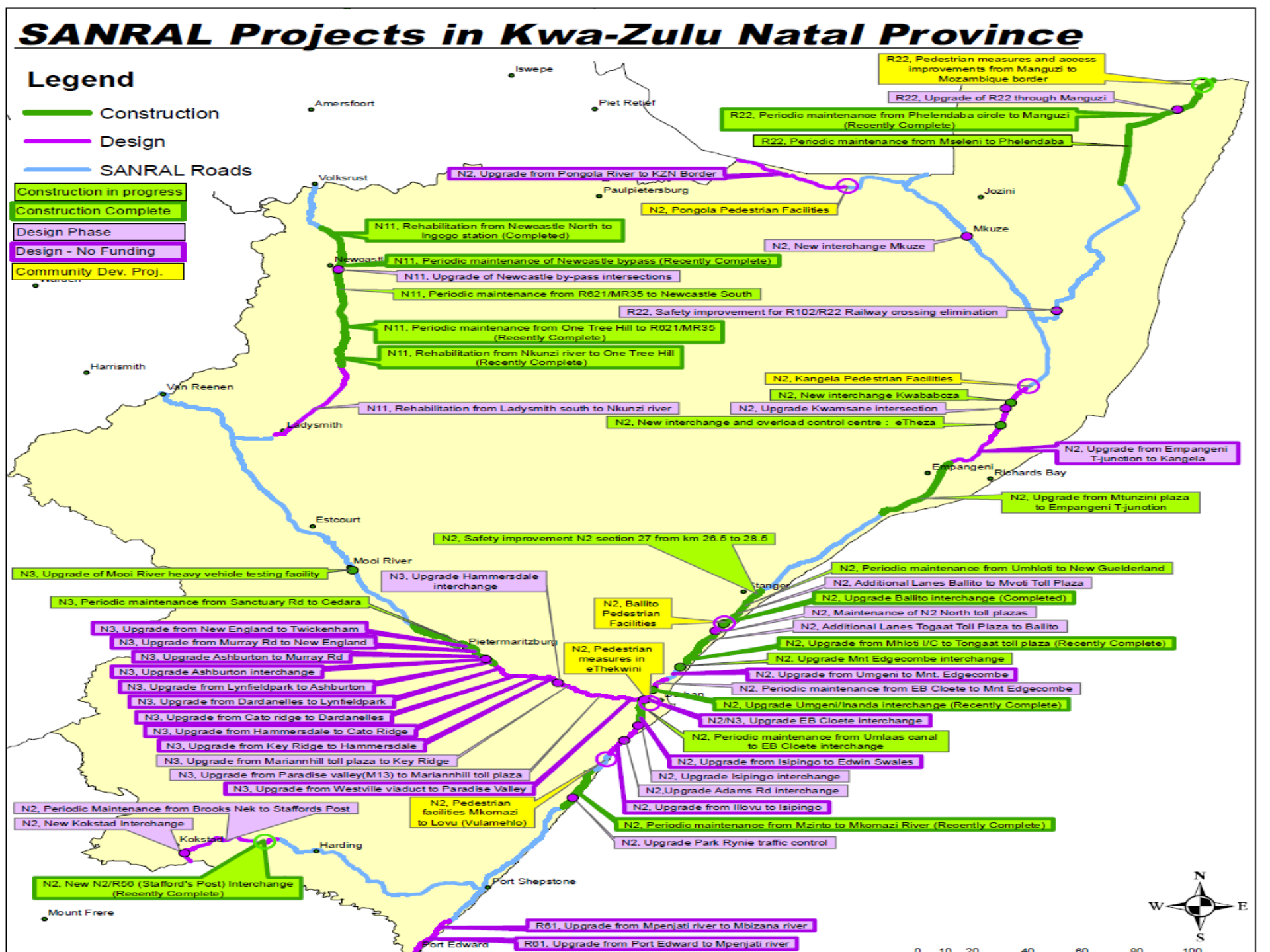
SANRAL Road Network in KZN

ROUTE	DESCRIPTION	LENGTH	
		Non-Toll	Toll
R61	Port Edward to Port Shepstone	24km	21km
N2	Brooksnek to Port Shepstone	136km	
N2	Port Shepstone to Hibberdene		27km
N2	Hibberdene to Mdloti	117km	
N2	Mdloti to Empangeni		138km
N2	Empangeni to Mpumalanga Border	250km	
R22	Hluhluwe to Mozambique Border	170km	
P720	N2 to Golela Border	10km	
N3	Durban to Paradise Valley	9km	
N3	Paradise Valley to Key Ridge		20km
N3	Key Ridge to Cedara	62km	
N3	Cedara to van Reenen		190km
N11	Bergville Interchange to Volksrust	170km	
	TOTAL	**948km**	**396km**

SANRAL Projects in Kwa-Zulu Natal Province



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CURRENT FUNDED INVESTMENTS IN KZN

N2	New Kokstad Interchange	Design
N2	Periodic maintenance from Brooks Nek to Staffordspost	Design
N2	Upgrade Park Rynie traffic control	Design
N2	Periodic maintenance from Umlaas canal to EB Cloete interchange	Construction
N2	Periodic maintenance from EB Cloete to Mnt. Edgecombe	Design
N2	Upgrade Mnt. Edgecombe interchange	Construction
N2	Periodic maintenance from Umhloti to New Guelderland	Construction
N2	Maintenance of N2 North toll plazas	Design
N2	Safety improvement N2 section 27 from km 26.5 to 28.5	Construction
N2	Additional lanes Tongaat toll plaza to Ballito	Design
N2	Additional lanes Ballito to Mvoti Toll Plaza	Design
N2	Upgrade from Mtunzini plaza to Empangeni T-junction	Construction
N2	New interchange and overload control centre : eTeza	Construction
N2	New interchange Kwababoza	Construction
N2	Upgrade Kwamsane intersection	Design
N2	New interchange Mkuze	Design

CURRENT FUNDED INVESTMENTS IN KZN (Contd)

N3	Upgrade Hammarsdale interchange	Design/Construction Eminent
N3	Periodic maintenance from Sanctuary Rd to Cedara	Construction
N3	Upgrade of Mooi River heavy vehicle testing facility	Construction
N11	Rehabilitation from Ladysmith south to Nkunzi river	Design
N11	Periodic maintenance from MR35 to Newcastle South	Construction
N11	Upgrade of Newcastle by-pass intersections	Design
R22	Safety improvement for R102/R22 Railway crossing elimination	Design
R22	Upgrade of R22 through Manguzi	Design
R22	Periodic maintenance from Mseleni to Phelendaba	Construction
	COMMUNITY DEVELOPMENT PROJECTS	
N2	Pedestrian measures in eThekwini	Design
N2	N2 Kangela Pedestrian Facilities	Design
N2	N2 Pongola Pedestrian Facilities	Design
N2	N2 Ballito Ped Facilities	Design
N2	N2 Pedestrian facilities (N2/24) Mkomazi - Lovu (Vulamehlo)	Design
R22	R22 Pedestrian measures and access improvements from Manguzi to Mozambique border	Construction
	TOTAL	**R8.333 Billion**

NDP, PICC & SIPs

- National Planning Commission identified major constraints in mapping current issues facing SA.
- NDP endorsed by Cabinet including National Infrastructure Plan.
- Cabinet decision to establish a body to integrate and coordinate the long term infrastructure build, namely the Presidential Infrastructure Coordinating Commission (PICC) with its supporting management structures.
- Through the PICC, Strategic Integrated Projects (SIPs) established.

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Strategic Integrated Project 2 (SIP2) – N2/N3

SIP 2: Durban- Free State– Gauteng Logistics and Industrial Corridor

Strengthen the logistics and transport corridor between SA's main industrial hubs; improve access to Durban's export and import facilities, raise efficiency along the corridor and integrate the Free State Industrial Strategy activities into the corridor and integrate the currently disconnected industrial and logistics activities as well as marginalised rural production centres surrounding the corridor that are currently isolated from the main logistics system.

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N3 Planning and Upgrading (SIP 2)

- The N3 between Durban and Pietermaritzburg was completed between 1961-1963 and in the mid 80's-current toll section between Paradise Valley and Key Ridge (17km).
- Consists of a dual divided carriageway freeway with three lanes per direction between Durban and Cato Ridge, and thereafter two lanes per direction up to Pietermaritzburg.
- Carries between 40,000 and 120,000 vehicles per day – mix of urban commuter traffic, long distance traffic and substantial heavy vehicles, with some sections in excess of 25% heavies.
- The N3 corridor carries in excess of 44 million tons of freight per annum (2015), with approx. 9000 heavy vehicles per day.
- Substantial delay costs and safety concerns (Townhill, Key Ridge) especially sections with two lane capacity and steep grades, requiring major upgrading of freeway (add. of lanes) and interchanges and underpass/overpass bridges.

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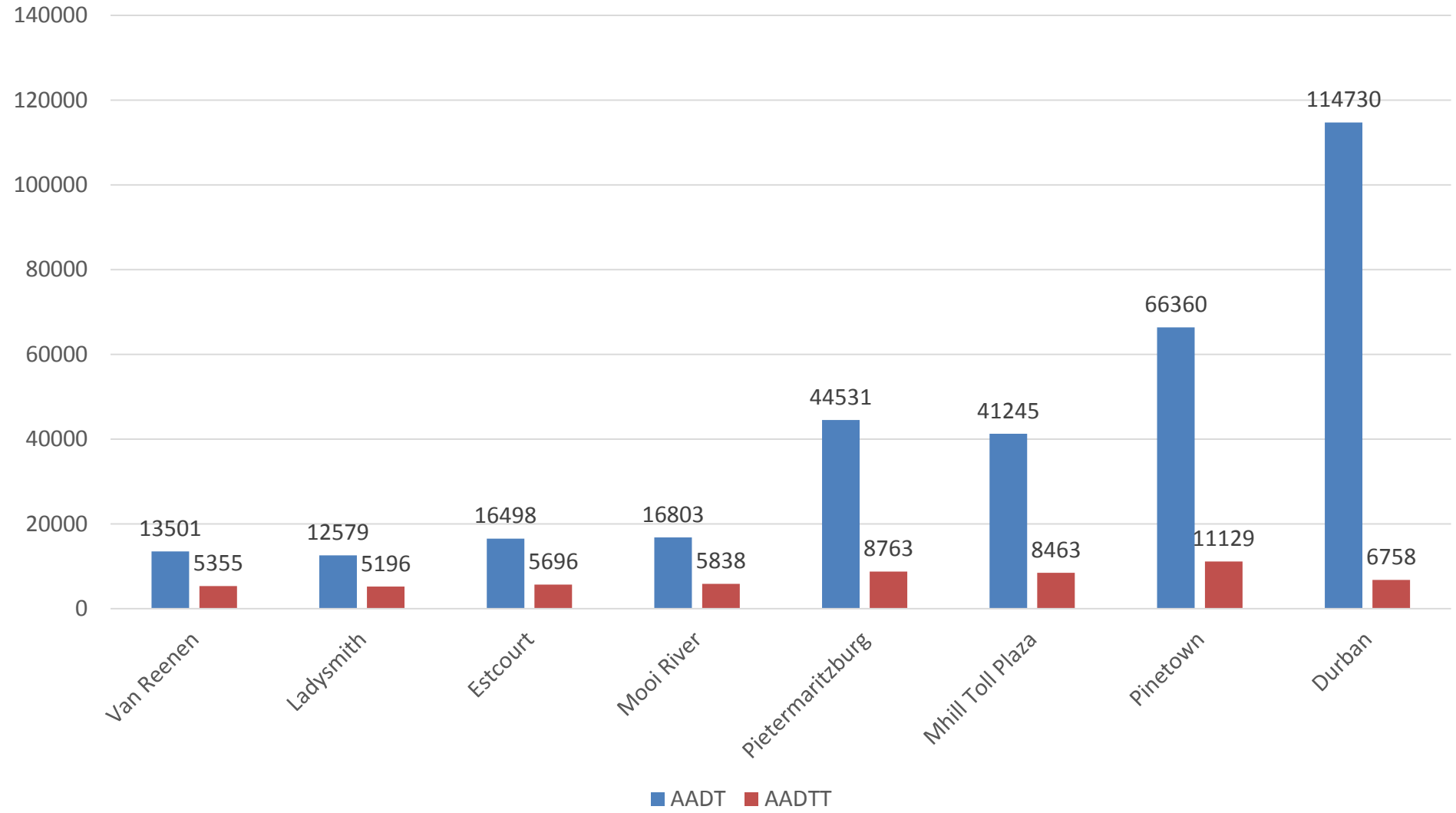
Current Demands (2015 Volumes) on the Road Network: N3



Current Constraints on N3
Compulsory Truck Stop – Key Ridge

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Current Constraints on N3
Mariannhill Toll Plaza – AM Peak

Current Constraints on N3
Congestion – Two Lane Sections

Current Constraints on N3
Accident – N3 Standstill

N3 Planning and Upgrading

- Considering a 35 year planning horizon up to 2047 to tie in with port upgrade plans.
- Need a phased approach – funding limitations.
- Route being assessed holistically as the Durban-Free State – Gauteng Freight Corridor together with NDoT, Transnet, provinces, municipalities, and Dept's.
- Ensuring capacity meets future demands when required.
- Consideration of a freight route out of port to N3 also being considered by others

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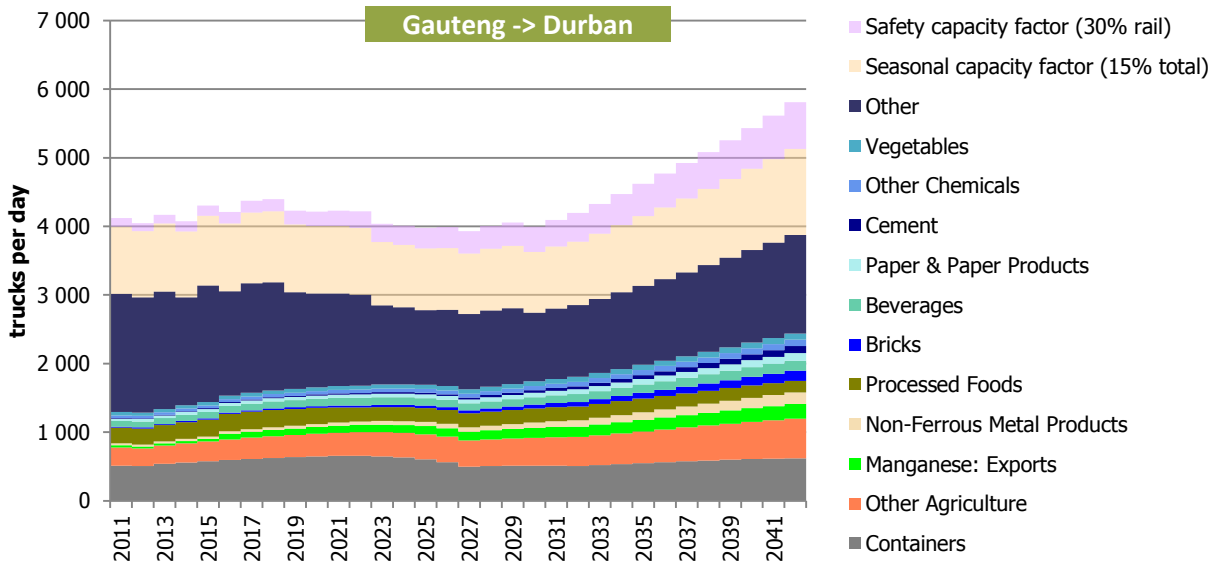
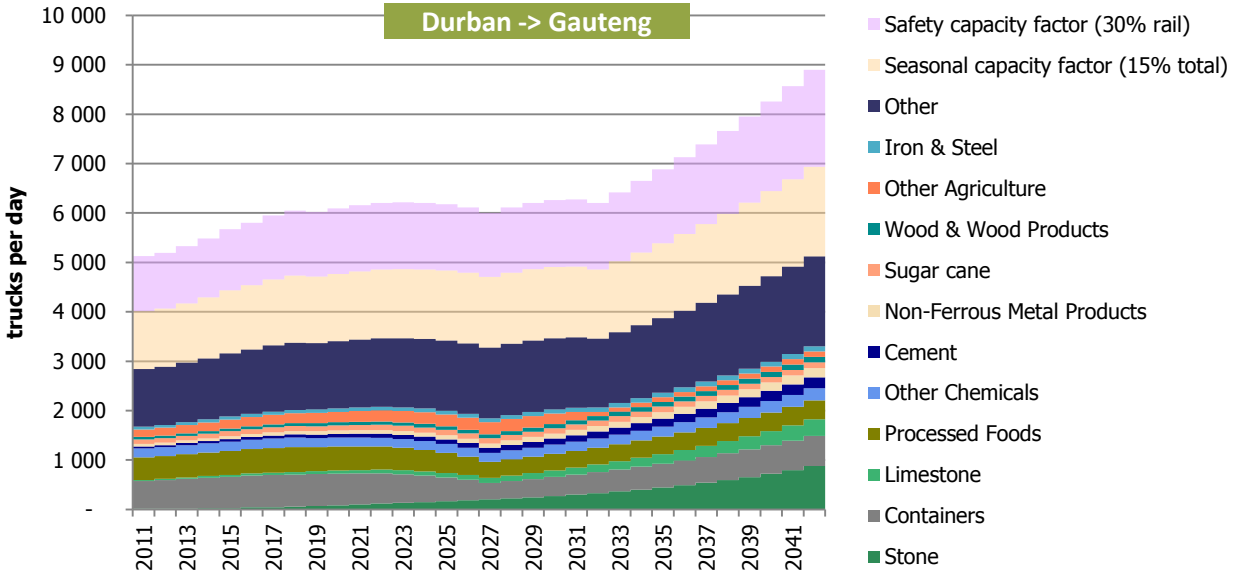
Transnet Freight Demand Model Data
Road flows per direction (trucks per day)



	2012	2020	2042
Containers	506	648	620
Other Agriculture	260	328	579
Manganese: Exports	25	98	211
Non-Ferrous Metal Products	29	45	172
Processed Foods	235	236	167
Bricks	15	26	148
Beverages	85	106	147
Paper & Paper Products	37	48	109
Cement	8	17	102
Other Chemicals	38	47	93
Total	2,920	2,976	3,815



Stone	15	82	878
Containers	559	643	611
Limestone	23	61	335
Processed Foods	456	486	381
Other Chemicals	180	181	245
Cement	40	73	226
Non-Ferrous Metal Products	50	70	185
Sugar cane	95	104	115
Wood & Wood Products	48	65	112
Other Agriculture	153	210	111
Total	2,789	3,344	5,046

N3 Planning and Upgrading Safety Considerations

N3 Planning and Upgrading Scope

- Addition of 2 and 3 lanes per direction resulting in a eight to ten lane freeway over a distance of 84km.
- Existing Toll section between Paradise Valley and Key Ridge (18km) to be upgraded from 6 lanes to 8 lanes and 10 on some sections.
- Median consisting of a concrete barrier with drainage.
- Road surface of asphalt and/or concrete over most sections due to loading from heavy vehicles.
- Upgrading of twenty seven interchanges.
- Ninety five underpass/overpass bridges required to be upgraded.
- Ring road around Pietermaritzburg is being investigated.
- Key Ridge Re-alignment to reduce steep grades and straighter alignment.
- M13 –N3 link being considered.
- Tunnels on Pietermaritzburg Ringroad and at Townhill as options.
- 36 -42 month construction duration on various packages.

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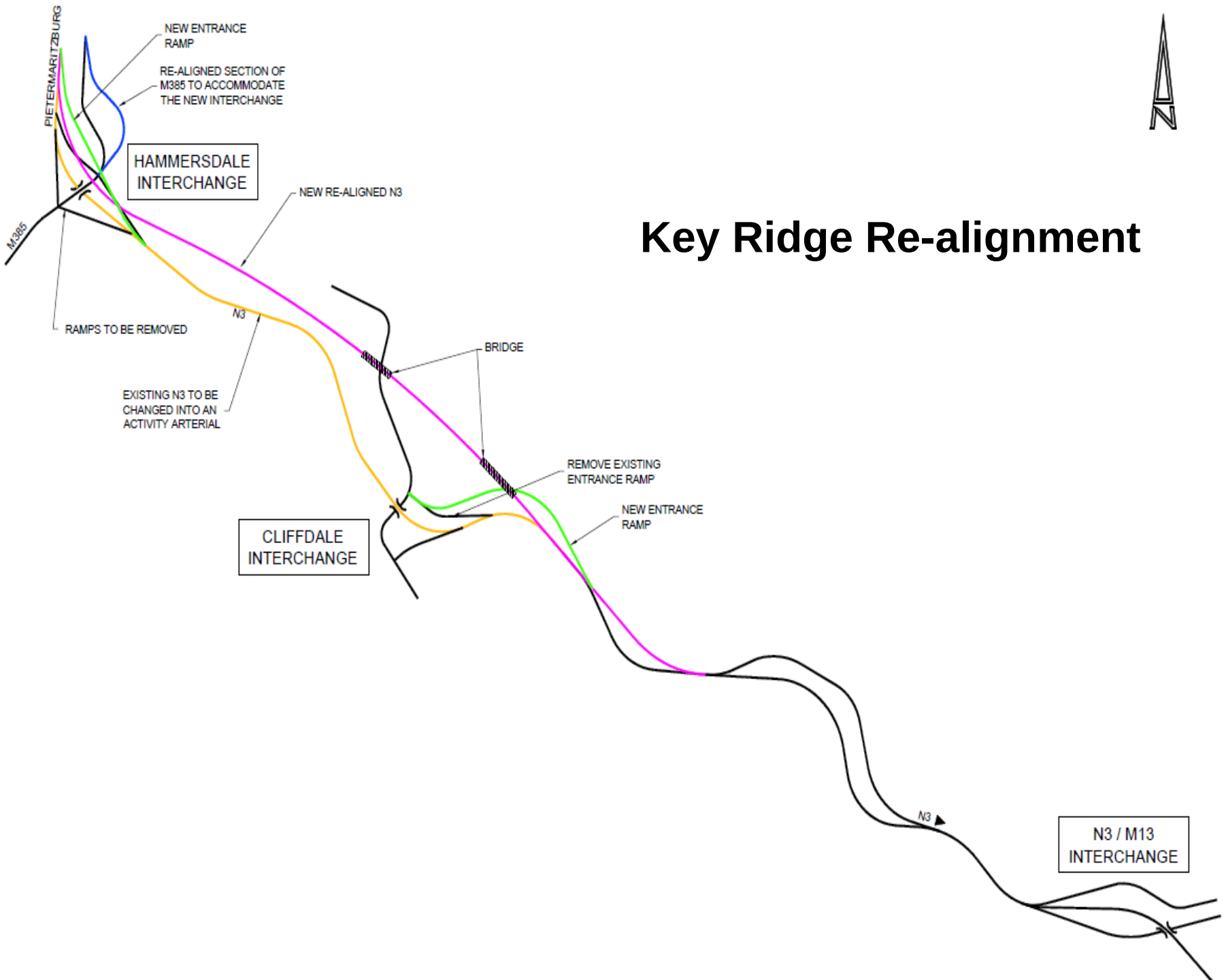
Key Ridge Re-alignment

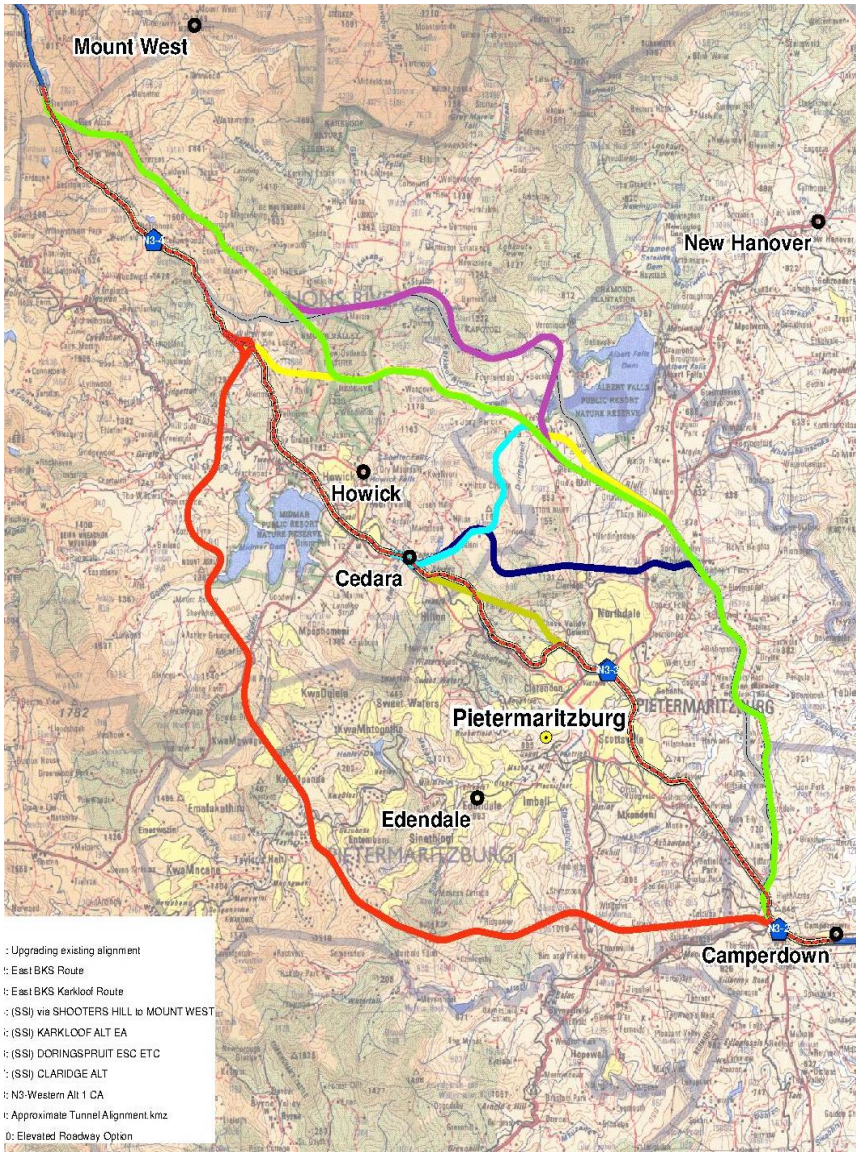


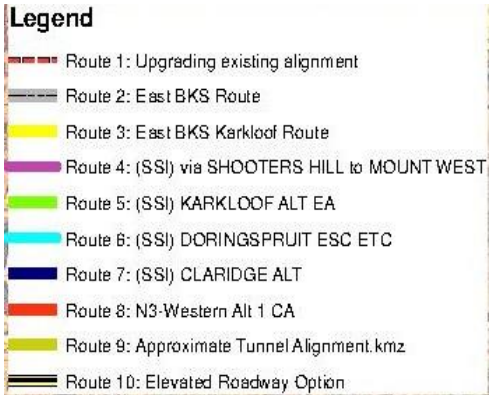
N3 Planning and Upgrading – PMB Ring Road

Route Location Study:
Various routes considered

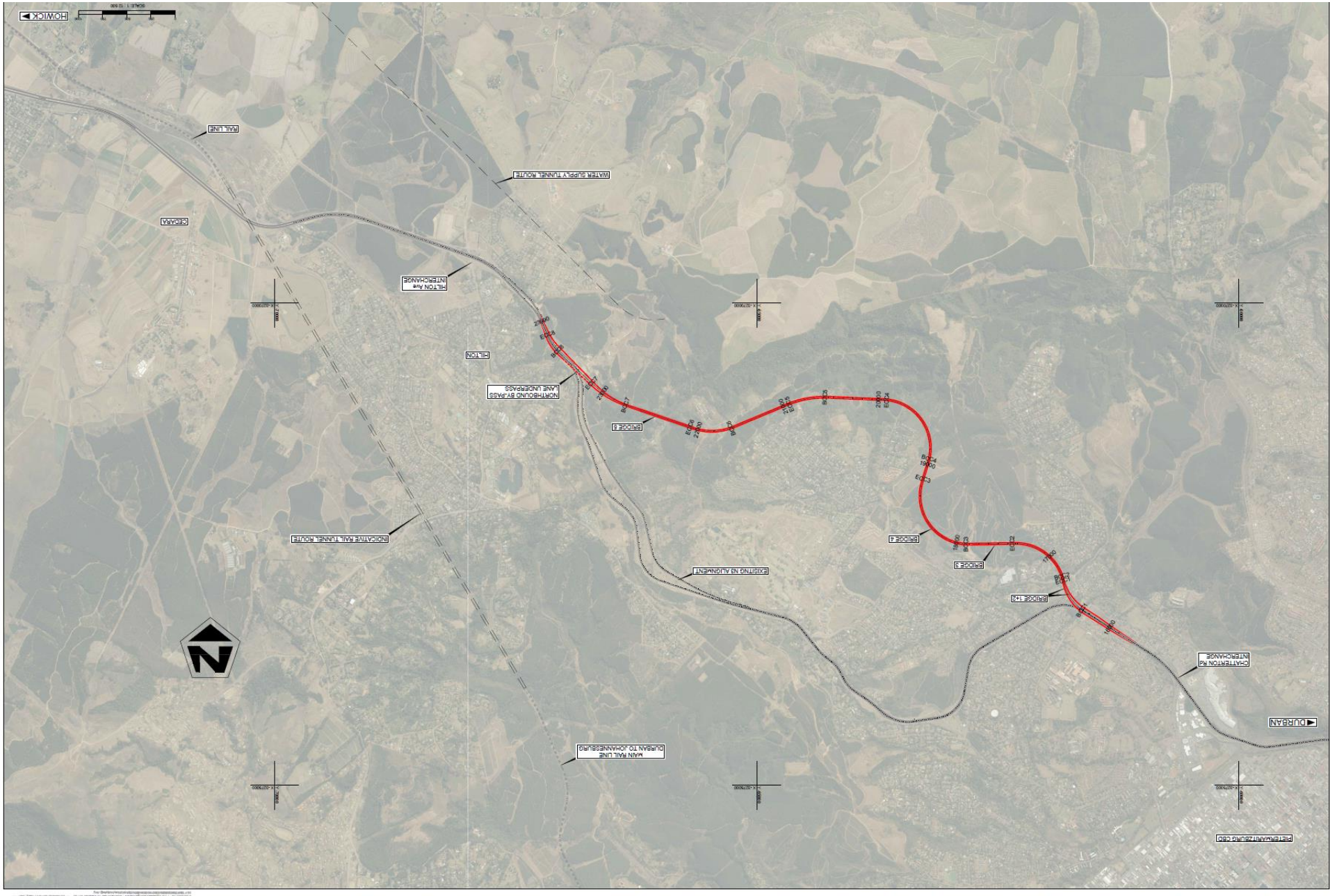
- **Routes identified and analysed according to:**
  - Length
  - Environmental screening
  - Cost

- **Routes assessed according to impact on:**
  - Existing infrastructure
  - Land use

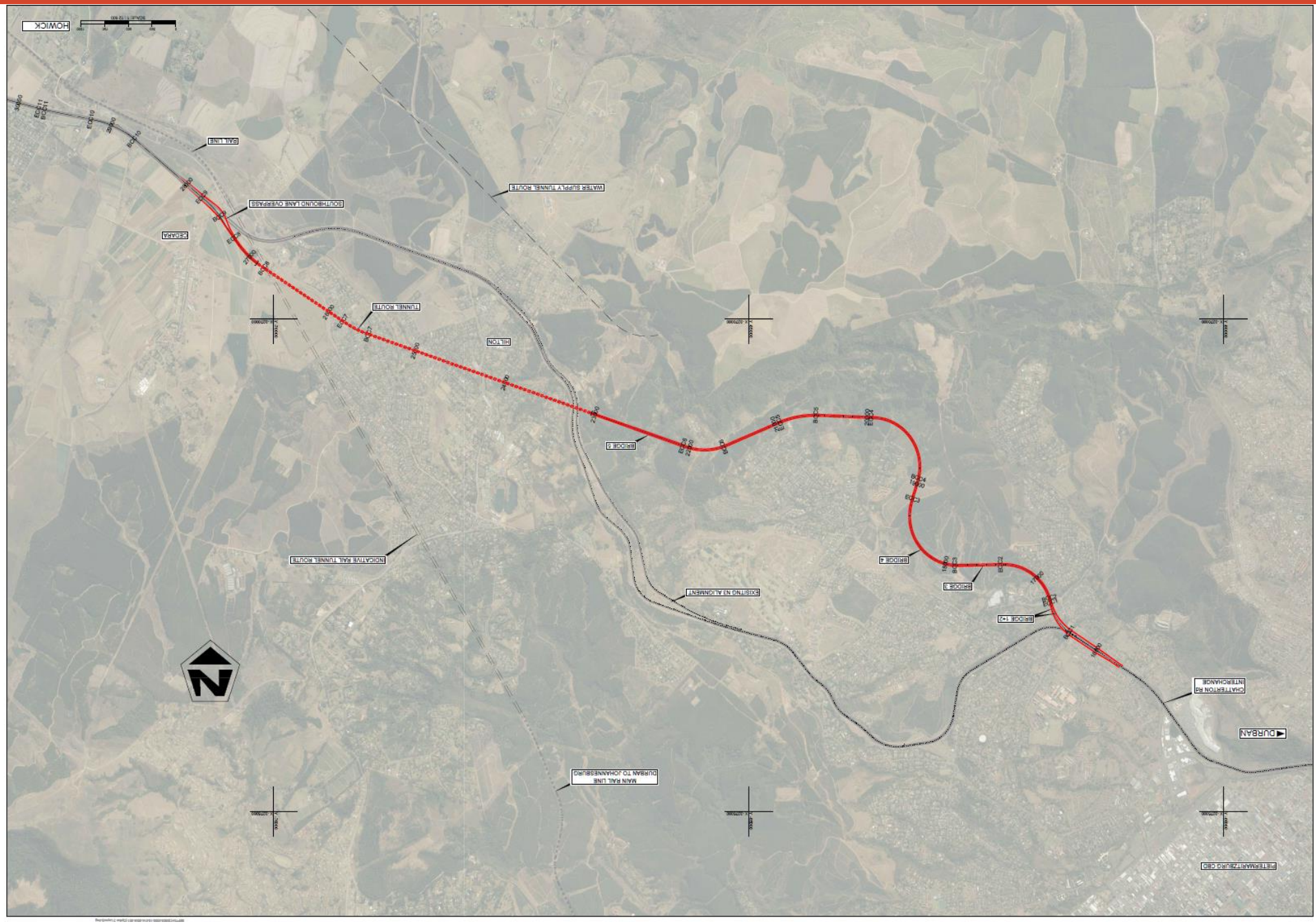




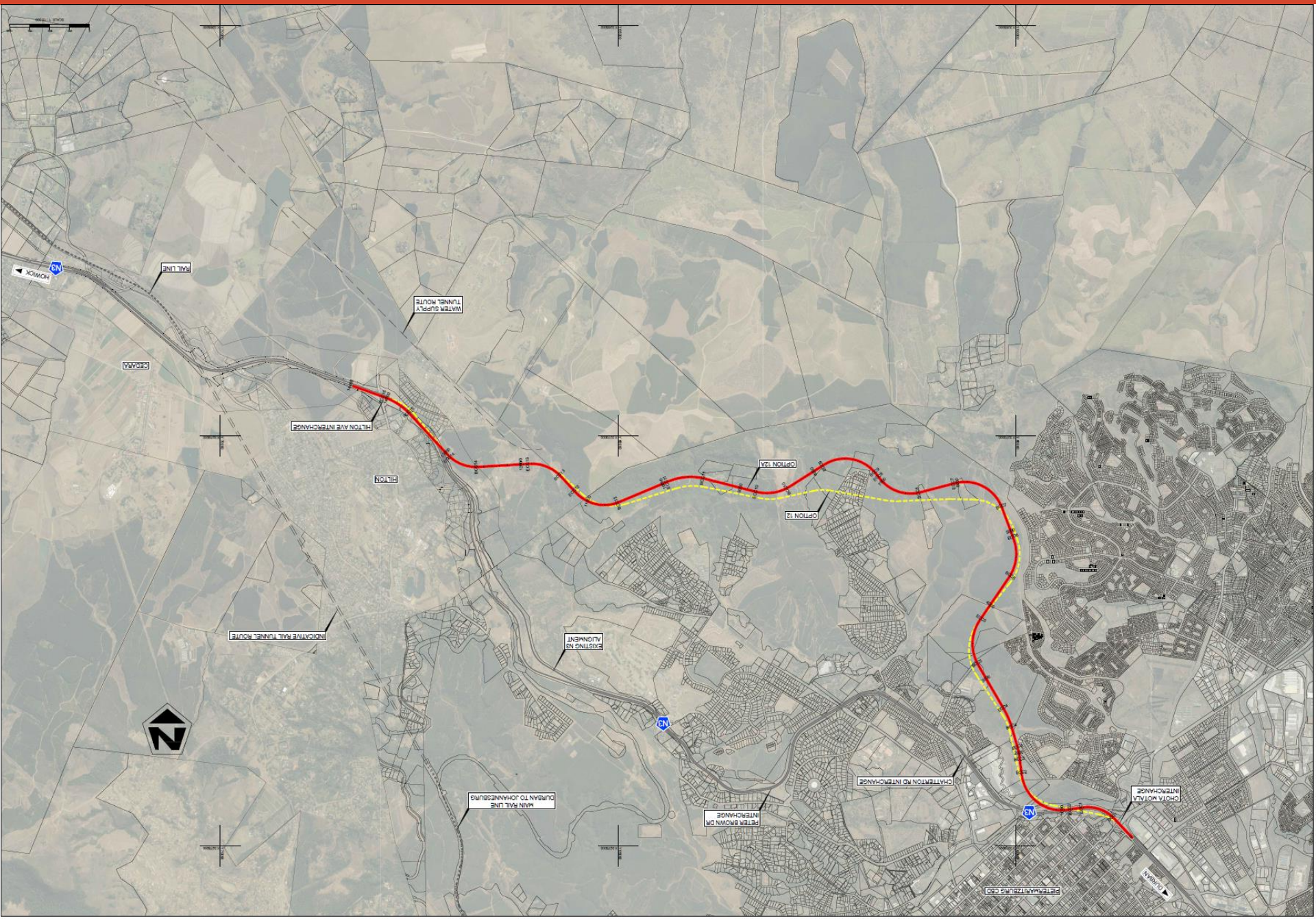
N3 PMB Ring Road – Route 11a

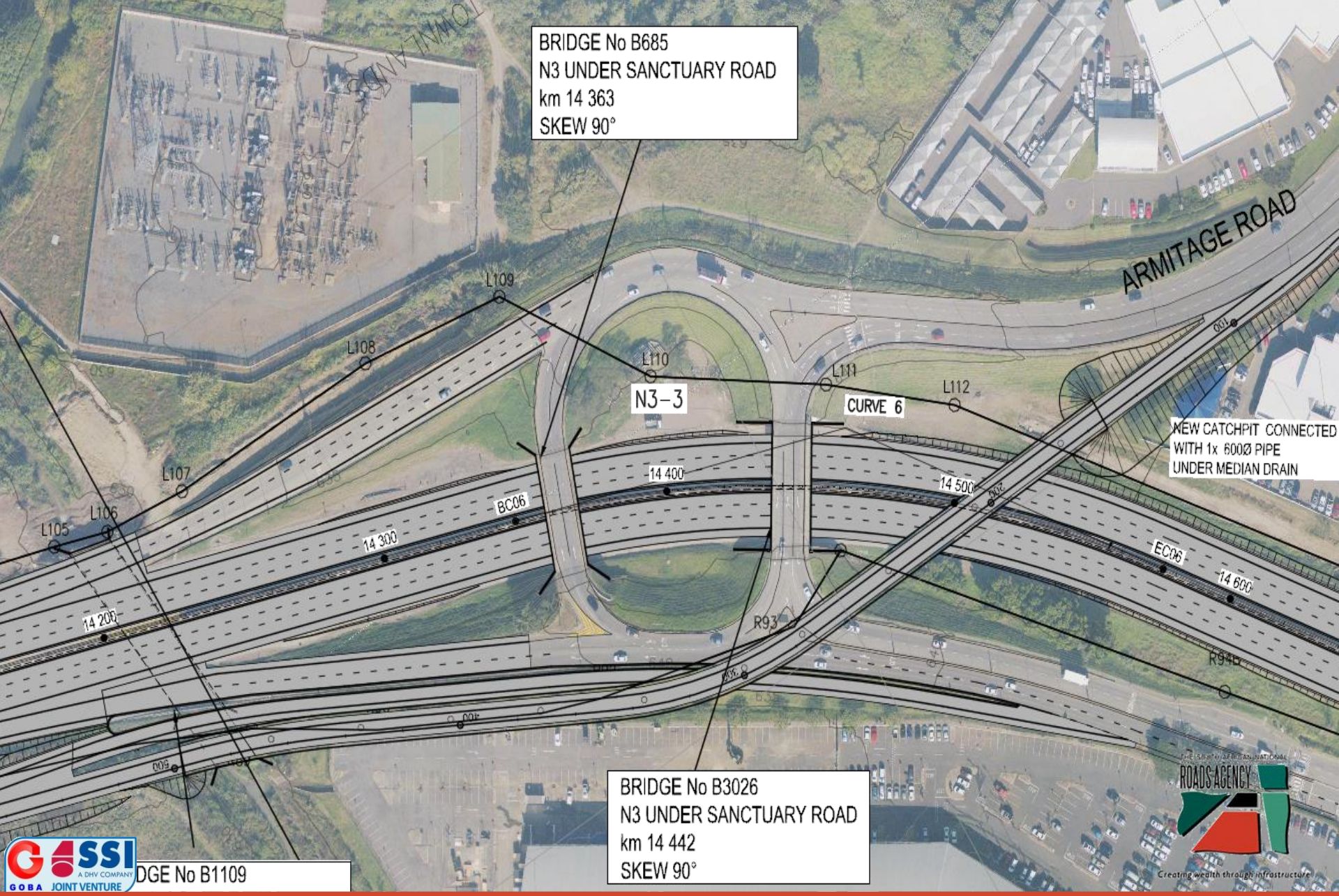


N3 PMB Ring Road – Route 11b



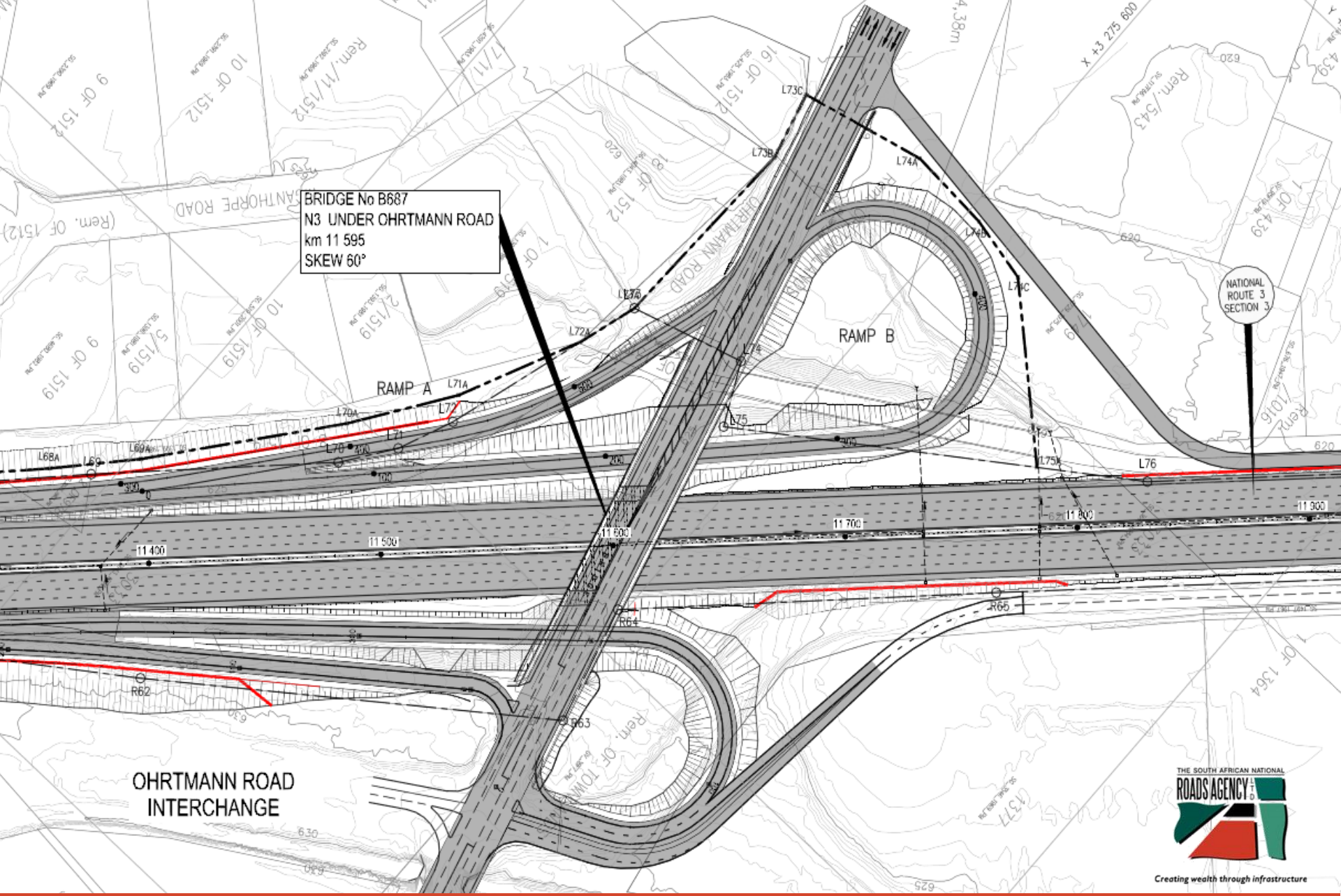
N3 PMB Ring Road – Route 12



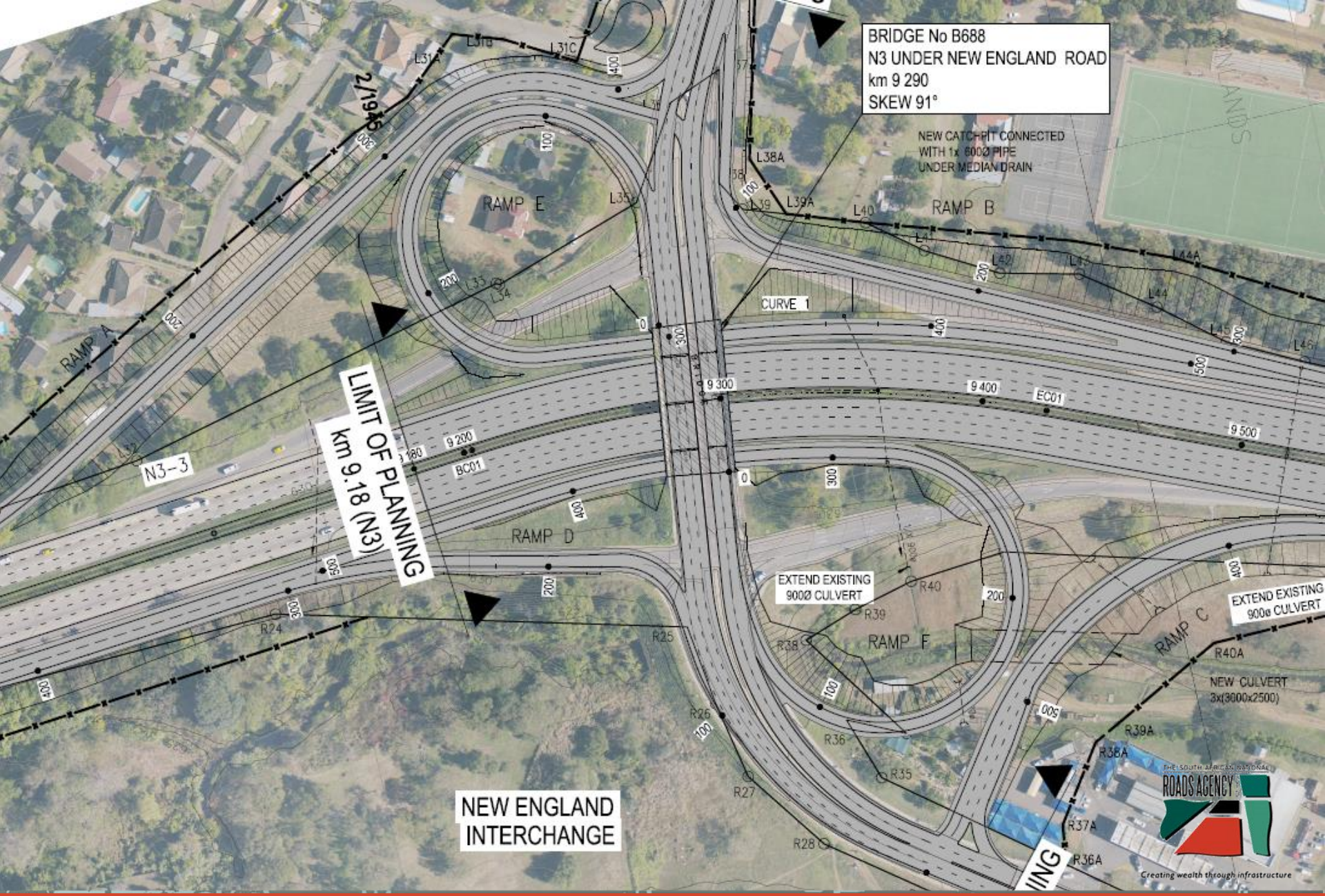


Sanctuary Road Interchange

Chota Motala Road Interchange

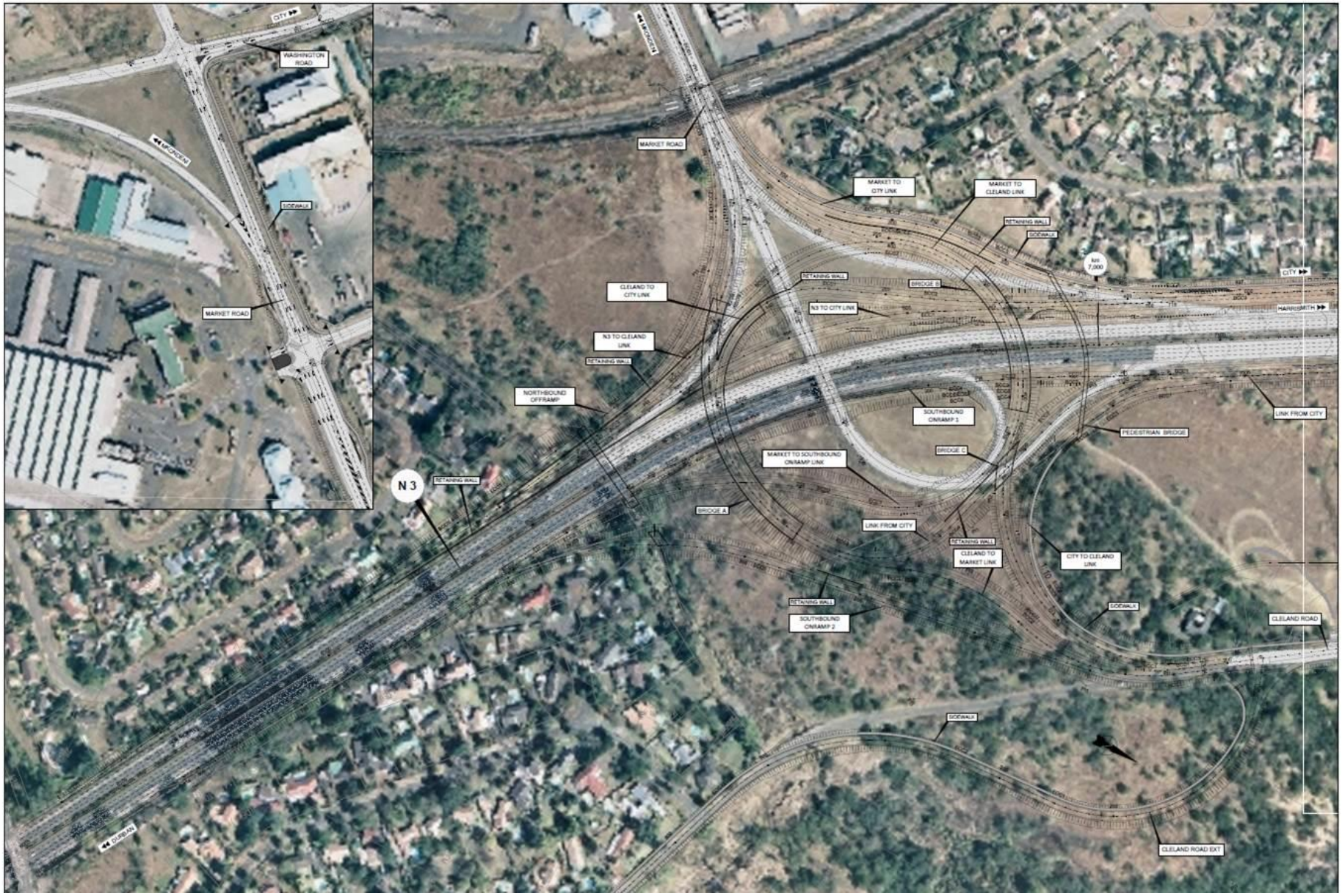


Ohrtmann Road Interchange

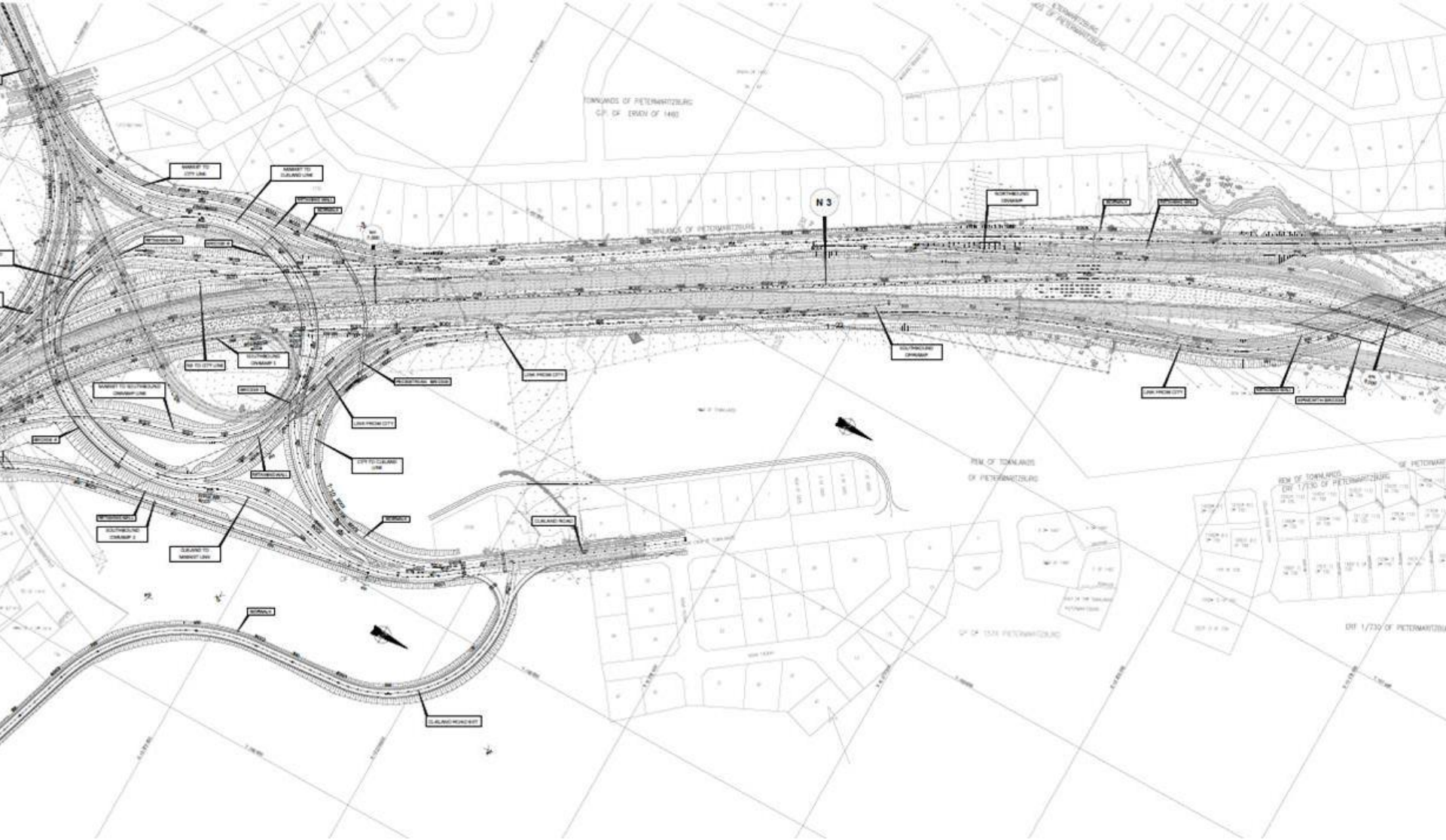


New England Road Interchange

Market - Epworth Interchange

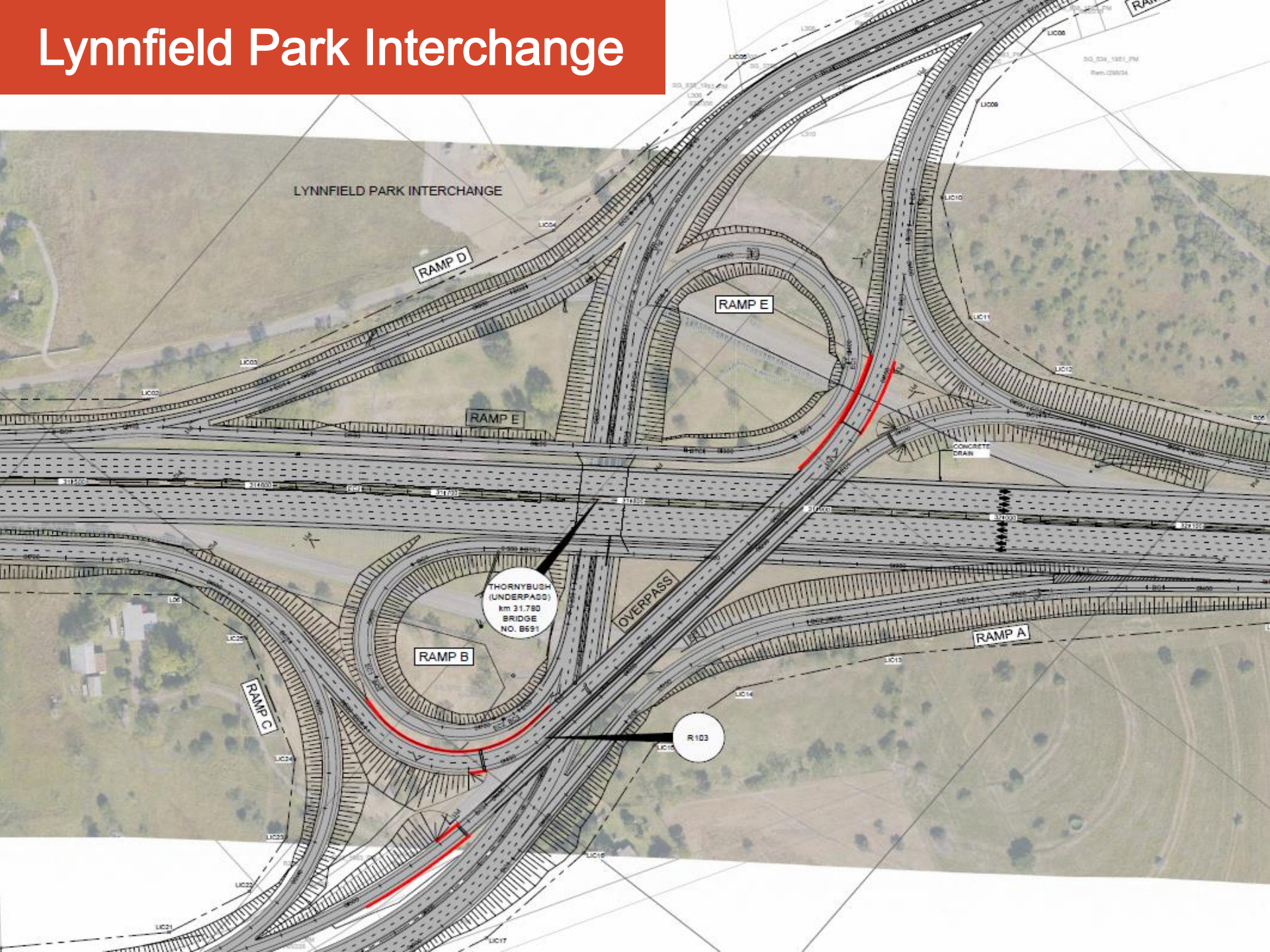


Market - Epworth Interchange



Ashburton Interchange

Lynnfield Park Interchange



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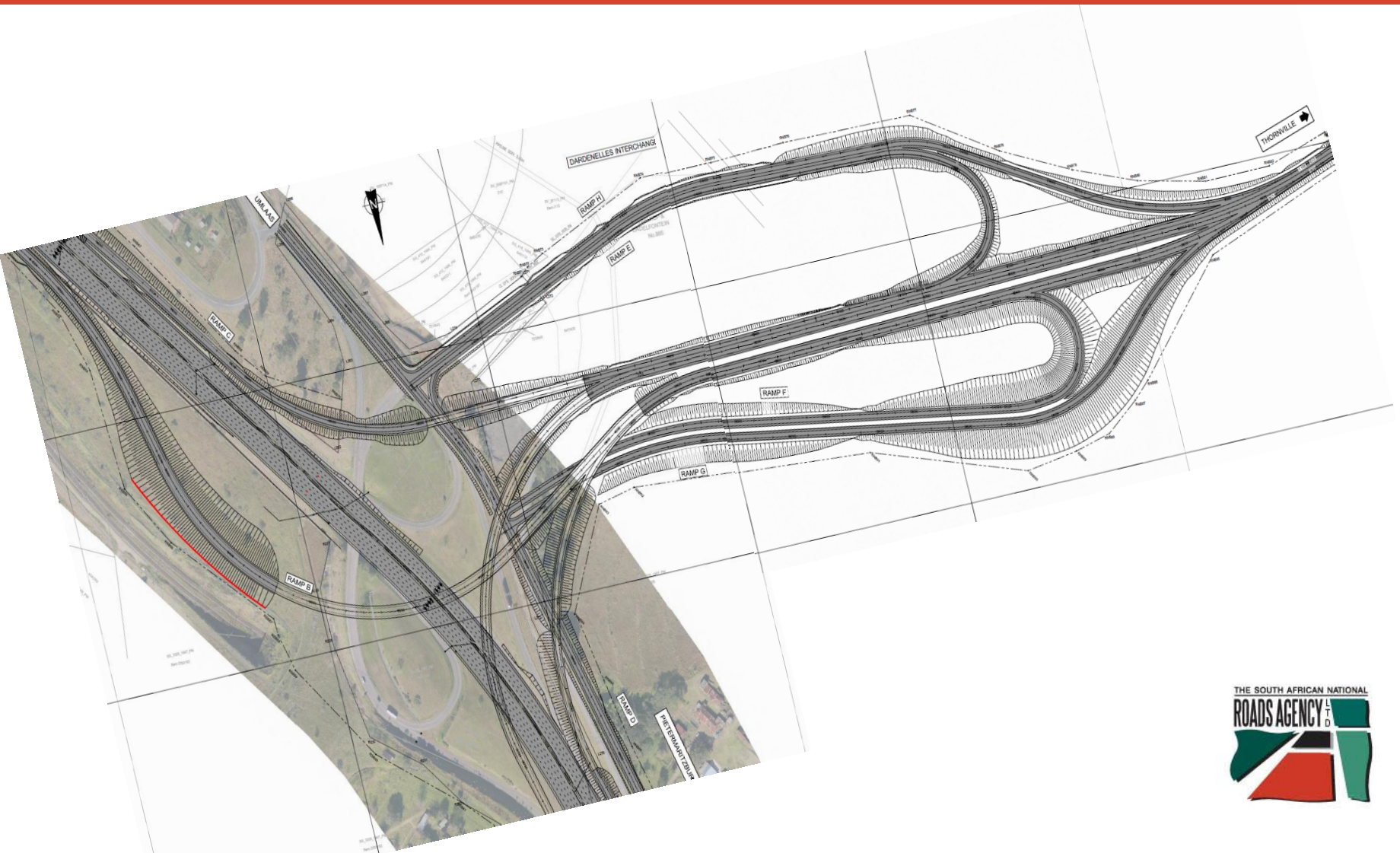
Dardanelles Interchange



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N3 Progress

- Preliminary Designs Completed.
- Detail designs currently in progress.
- Land Acquisition commenced.
- Environmental process with specialist studies commenced.
- Public Participation on hold until funding sourced.
- PMB Ringroad environmental screening process nearing completion.

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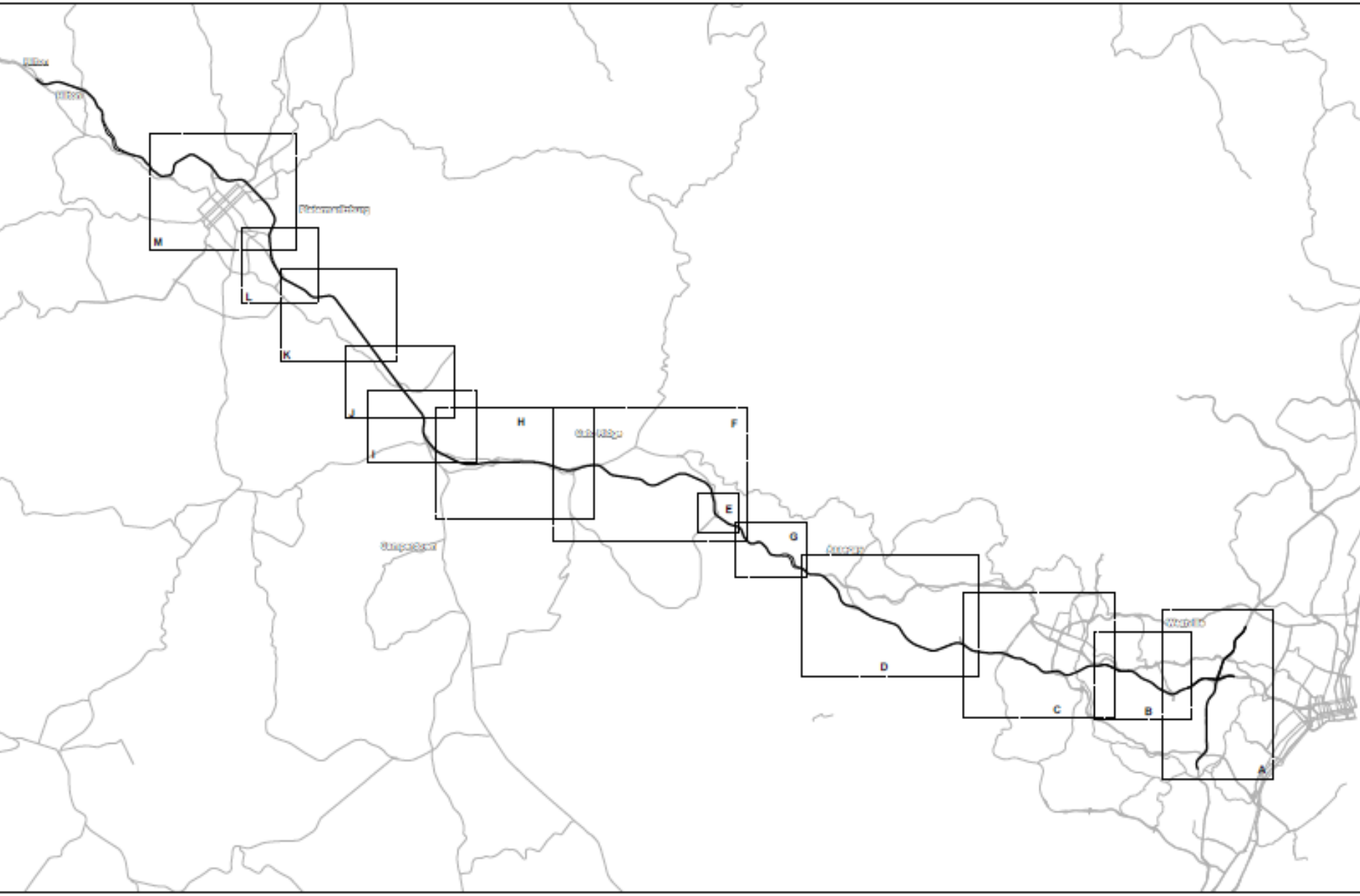

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INDEX OF PACKAGES

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N3 Packages

PACKAGE	DESCRIPTION	LENGTH KM	NO. OF NEW BRIDGES/ WIDENINGS	I/Cs TO BE UPGRADED	ESTIMATED COST OF WORKS (2015 Rand)
A	EB Cloete (including portion of N2 North and N3 West)	6.3	10	1	1 920 000 000 .00
B	Westville Viaduct (Km11.8) to Paradise Valley (Km17.5)	5.7	13	2	1 270 000 000.00
C	Paradise Valley (Km17.5)-Marianhill Toll Plaza	7.5	5	3	1 004 543 000.00
D	Marianhill Toll Plaza (25) to Key Ridge (2.8)	11.1	9	2	1 242 260 000.00
E	Hammarsdale I/C upgrade (Km 9.4)	0	1	1	276 448 000.00
F	Hammarsdale (9.1) to Cato Ridge (20.1)	11.3	3	-	1 217 868 000.00
G	Keyridge (Km2.8) to Hammarsdale (Km 8.1)	5.3	4	-	1 272 377 000.00
H	Cato Ridge (Km19.4) to Dardenelles I/C (Km26.6)	7.2	6	2	1 886 000 000.00
I	Dardenelles I/C (26.6) to Lynnfield Park (Km 30.6)	4	4	1	1 155 143 000.00
J	Lynnfield Park (Km 30.6) to Asburton I/C (Km 1.5)	5.3	4	1	994 529 000.00
K	Asburton I/C (Km 1.5) to Murray Road (Km6.1)	4.6	2	1	686 000 000.00
L	Murray Road (Km 6.1) to New England Rd I/C	2.9	9	2	951 100 000.00
M	New England Rd I/C to Twickenham Road (Km16.4)	7.5	8	4	1 100 000 000.00
TOTAL		79.3	78	20	14 976 268 000.00

≈ R 5 Billion

N3 Packages

- Eighty kilometres of 8 to 10 lane freeway.
- Construction cost of approx. R15 billion.
- 78 New Bridges/ Widenings.
- 20 Interchanges to be upgraded.
- Design Fees of approx. R330 million (2,2% of construction).
- Supervision costs of approx. R1 billion (6,7% of construction).

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N3 Upgrade Expenditure in Msunduzi Municipality

PROJECT	Budget/Expenditure			TOTAL COST
	2014/2015	2015/2016	2016/2017	
N3: PMB Bypass (Ring Road)	R 3 100 000.00	R 4 100 000.00	R 8 500 000.00	R 15 700 000.00
N3: Dardenels to Lynnfield Park	R -	R 8 000 000.00	R 11 464 015.00	R 19 464 015.00
N3: Lynnfield Park - Ashburton IC	R -	R 2 588 715.00	R 16 485 303.04	R 19 074 018.04
N3: Ashburton IC - Murray Rd	R -	R 3 929 000.00	R 11 000 000.00	R 14 929 000.00
N3: Gladys Manzi Rd - New England Rd	R -	R 6 000 000.00	R 14 000 000.00	R 20 000 000.00
N3: New England Rd - Twickenham Rd	R -	R 5 450 000.00	R 23 281 400.00	R 28 731 400.00
N3: Sanctuary Rd- Cedara I/C	R 5 000 000.00	R 98 000 000.00	R 33 000 000.00	R 136 000 000.00
			TOTAL	**R 117 898 433.04**

N3: Sanctuary Rd- Cedara I/C

- Four (4) SMME sub-contractors have been employed with work to the value of R14M
- The maximum number of local persons employed was 54, with R3.4M earned in wages
- An amount of R 260 000 was scheduled for training 50 people

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N3: Sanctuary Rd- Cedara I/C

Challenges

- Funding for construction
  - Substantial Upgrade costs.
  - PICC to make a decision on funding options.
- Integrated transport planning.
- Balancing of rail vs road.
- Preserving mobility and safety of the national road network.
- Limiting new accesses where possible.
- Engaging with other roads authorities

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Opportunities

- Improve road safety
- Reduce road congestion and delays to users
- Increase the participation of local business especially SMMEs
- Maximise job and training opportunities
- Unlock land development potential
- Support integrated planning across government spheres

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THANK YOU

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