



12TH Conference on Asphalt Pavements for southern Africa

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Workshop 6

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Overview of the unsealed road network in South Africa



- 454 609 km of proclaimed unsealed roads in South Africa
- Indications are that amongst these unsealed roads, approximately:
 - 91% carry less than 250 vehicles per day
 - 84% carry less than 100 vehicles per day
- Unsealed roads are typically upgraded to a surfaced standard once traffic exceeds between 200 and 1000 vehicles per day
 - 0.3% of unsealed roads upgraded annually
- Status quo = The high prevalence of unsealed roads will remain constant

Context: Unemployment

- 6.1 million unemployed workers
- 2.8 million discouraged workseekers

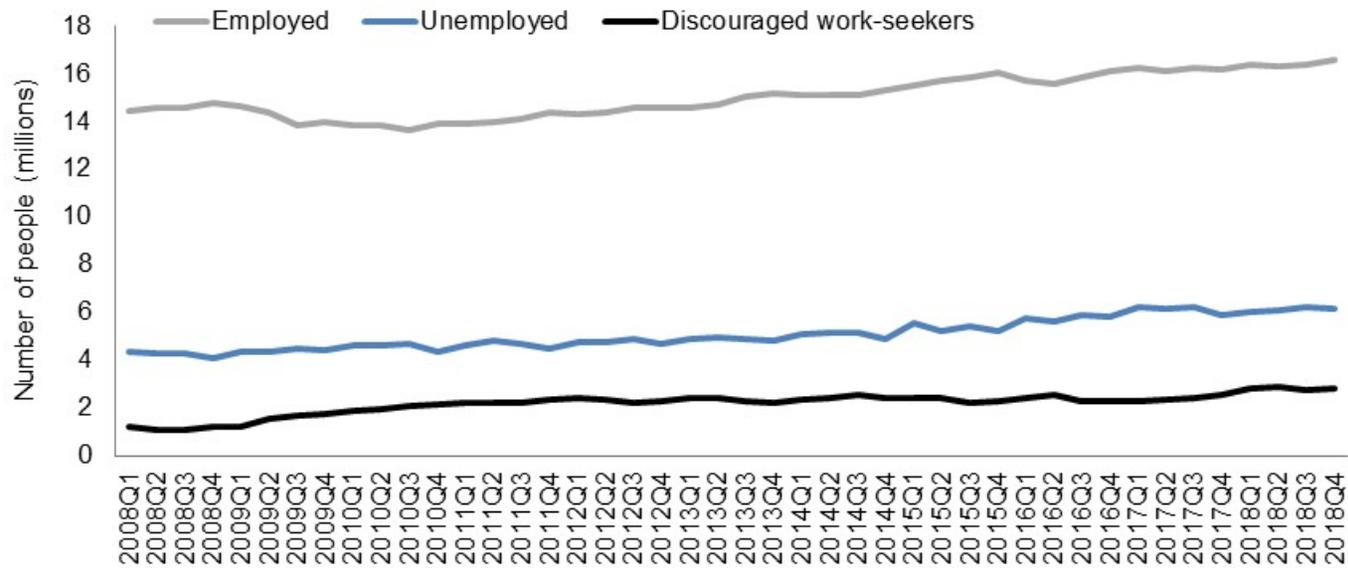


Figure: Labour force characteristics, 2008Q1-2018Q4

Context: Skills profile of the unemployed

- Of the unemployed workers:
 - 57.2% completed less than secondary school
 - 34.2% have completed secondary school

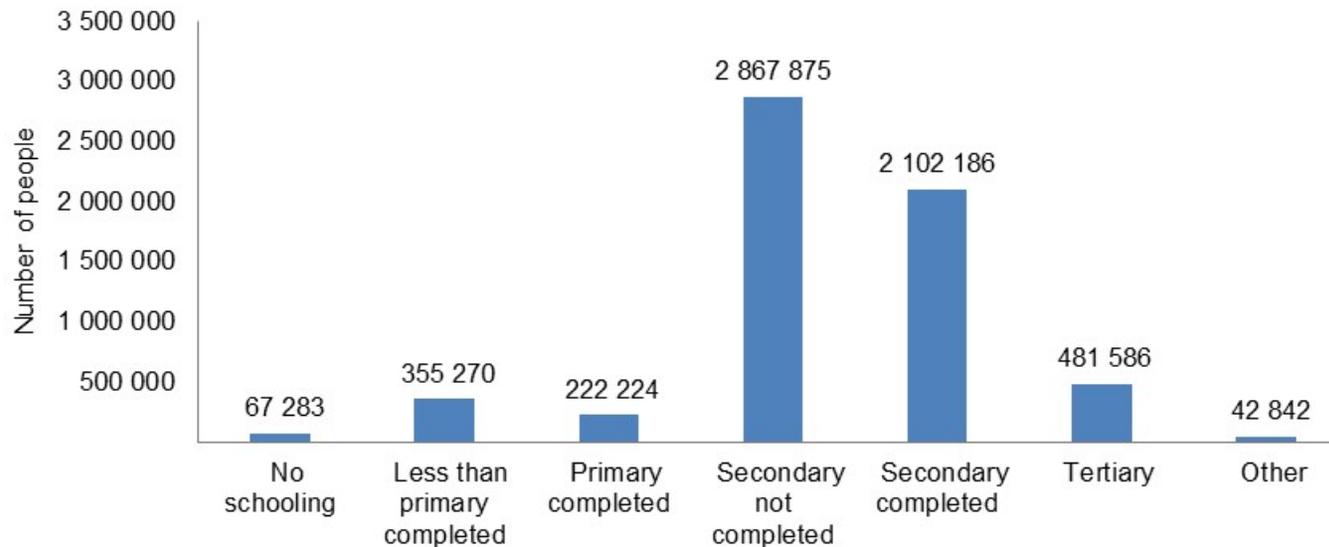


Figure: Education profile of unemployed workers, 2018Q4

Context: Rural unemployment

- High levels of rural unemployment
- Reflects the distribution of unsealed roads

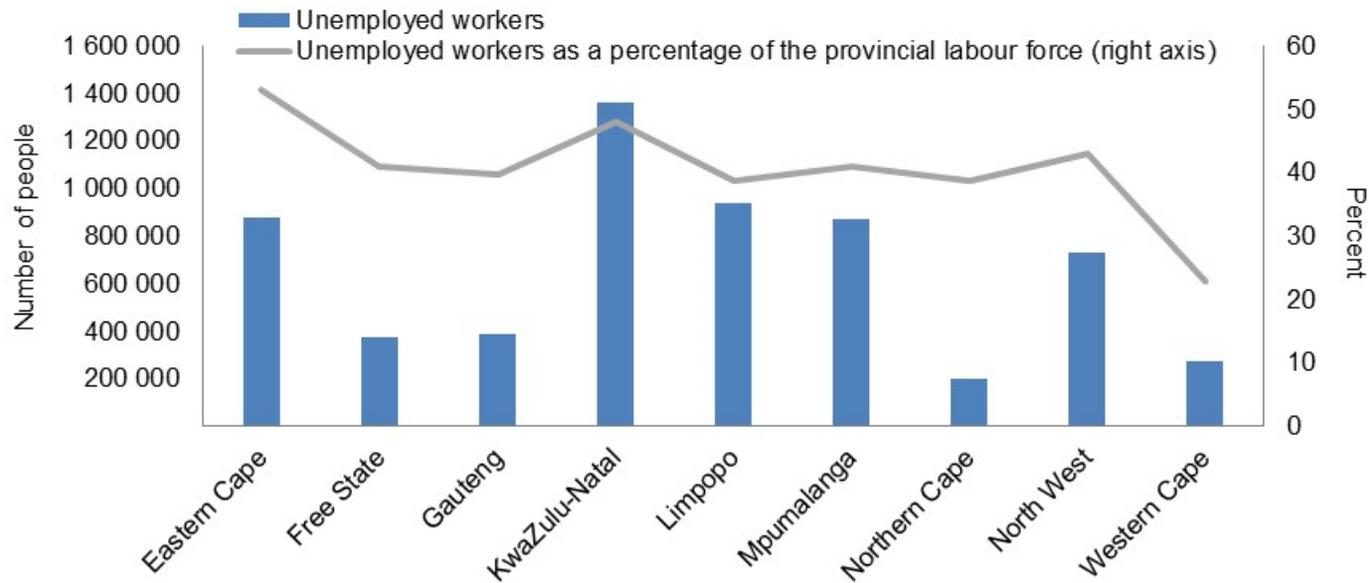


Figure: Unemployment outside the metropolitan municipalities, 2018Q4

Concerns about gravel roads in SA: Material availability

- The supply of sufficiently high-quality gravel is constrained by:
 1. Scarce, worked-out, or inaccessible gravel deposits
 2. Legal & environmental complications

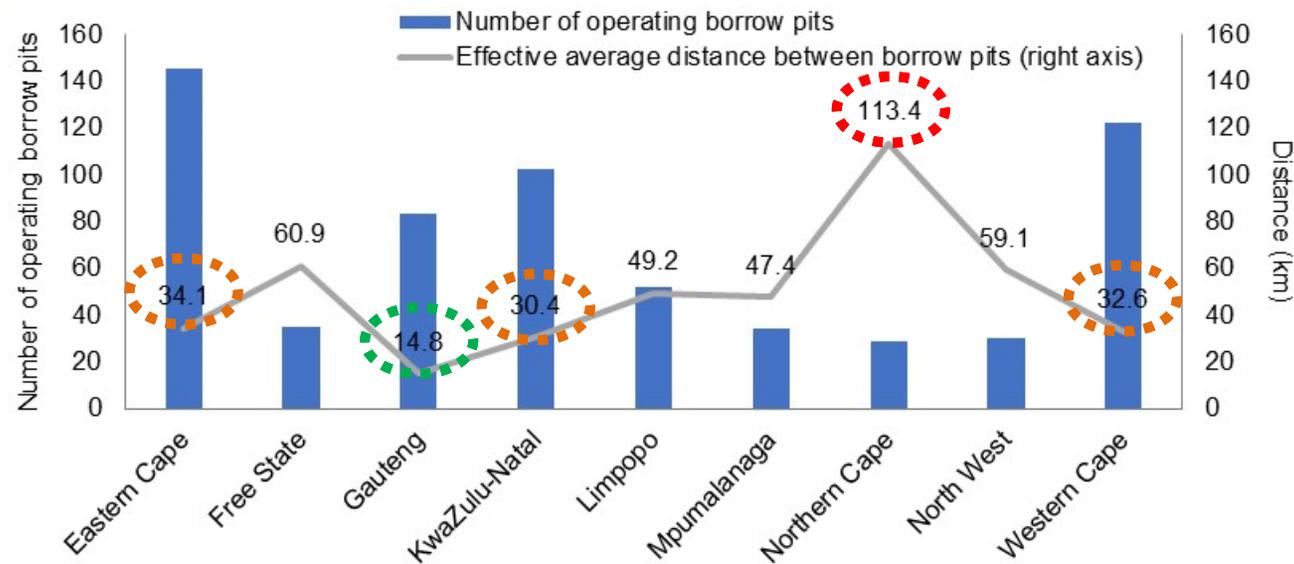


Figure: Effective average spacing between operating borrow pits, 2019

Concerns about gravel roads in SA: Basic materials

- The price of recurring inputs for gravel roads are volatile
 1. The price of aggregate stones increased by 53.5% over the period
 2. The price pre-mix asphalt increased by 14.4% over the period

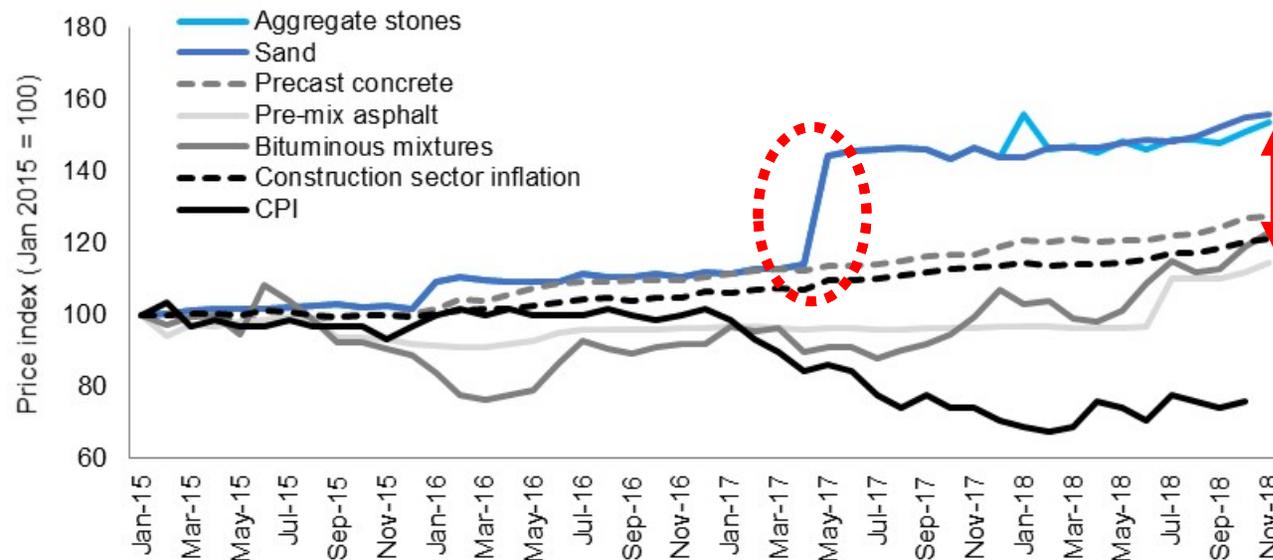


Figure: Construction materials price indices, 2015-2018

Why is this a concern? Additional considerations



- Gravel road compaction requires 135 000 – 153 000 litres of water per m³
 - Many parts of South Africa are water scarce
- Erosion of gravel road surfaces is problematic in mountainous terrain
 - 60 mountain range across South Africa
- Erosion of gravel road surfaces is problematic in regions with high rainfall
 - 6% of land area in South Africa receives > 1000 mm per annum
- Gravel roads abrade to some extent to produce dust
 - Negative effects on agricultural yields and health outcomes

Questions

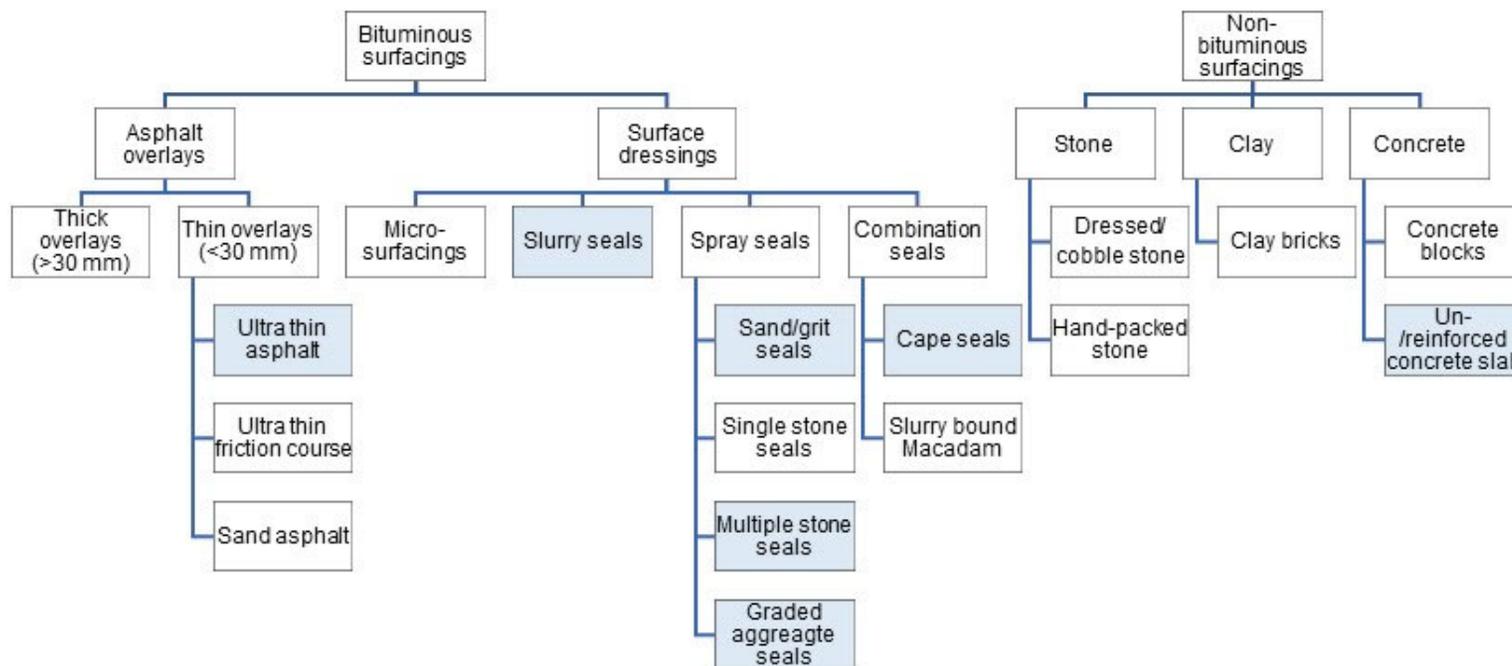


Figure: Modelled surface options for low-volume roads