

THE FUTURE OF WIM IN SOUTH AFRICA

M VAN DER WALT & L LESEANE

40th Annual SATC Incorporating the 3rd Regional Seminar on Weigh-In-Motion
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SANRAL'S RESEARCH PROGRAM

STRATEGIC OBJECTIVE

Utilise technology, research and innovation to advance the provision, operation and management of the national road system.

Research Project: 5.2 & 5.3 Overload Control Processes and Technology



“If you can’t measure
it, you can’t improve
it.”

Peter Drucker

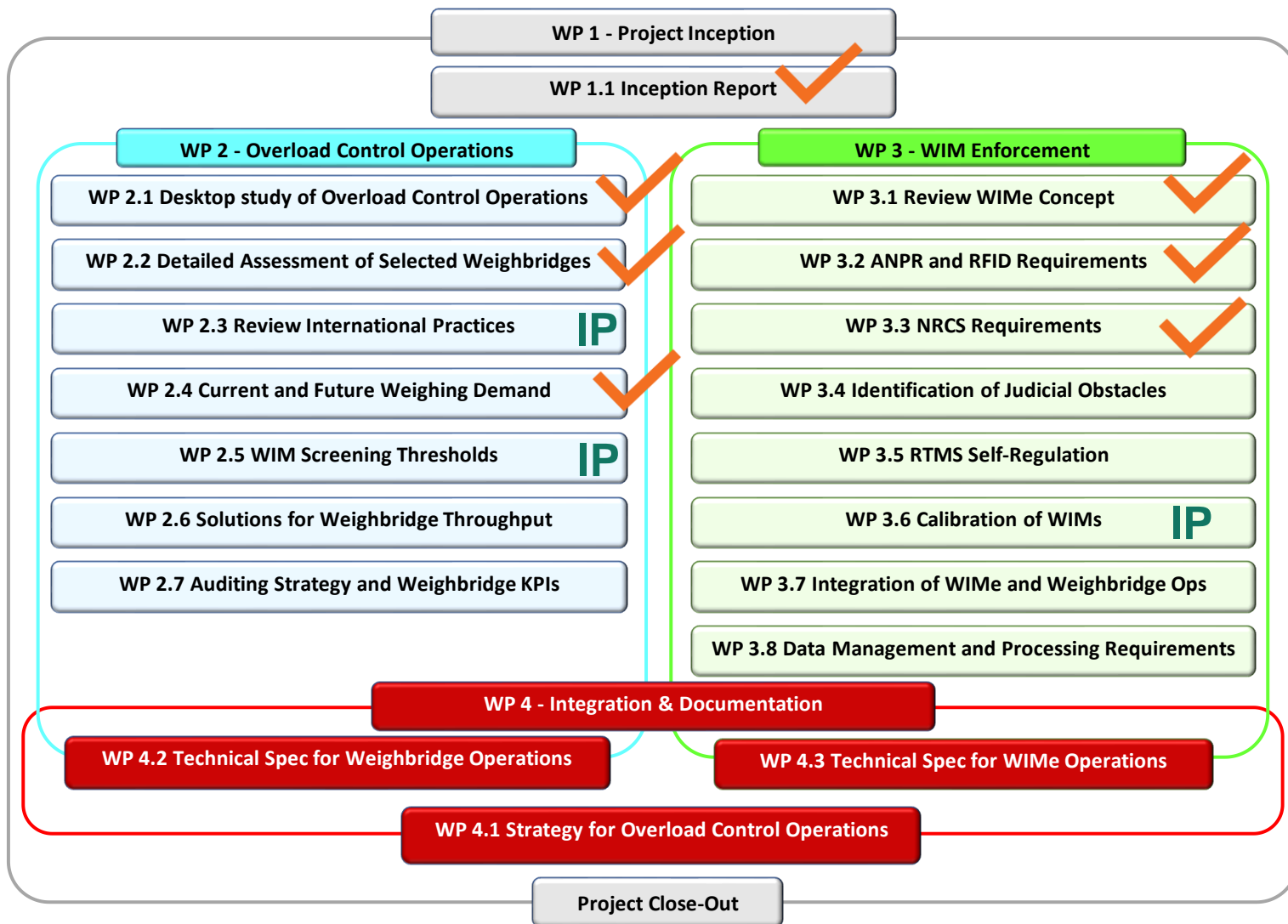
Research Project: 5.2 & 5.3 Overload Control Processes and Technology

Holistic review of Overload Control Processes

- Research the dynamics of operational processes at weighbridges.
- Determine the potential to improve, replace or better integrate them.
- Determine how to best support the judicial system (and vice versa).
- WIMe
 - Monitor overloading trends
 - Identify habitual offenders
 - Enhance the self-regulation concept
 - Reduce the burden of Weighbridges
 - Reducing unfair and costly time wastage of law-abiding transport operators.

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Project Work Flow Structure



Start: 31 March 2021

Completion: 31 March 2023

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WP2.1 Desktop study of overload control operations

OBJECTIVE

Assess the operational structure / elements and throughput of weighbridges to determine status quo and to select weighbridges for detailed scrutiny.

FINDINGS

- 71 National and Provincial Weighbridges
- 45 Selected for further analysis*
- 10 Selected for site visits

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WP2.2 Detailed assessment of selected weighbridges

OBJECTIVE

Determine the impact of sequential processes on weighbridge efficiency and throughput and determine areas for optimisation, improvement or replacement.

FINDINGS

- Disable manual linking of WIM records.
- Reduce the length of the single vehicle zone.
- Upgrade outdated servers and communication networks.
- Refining of data hungry weighbridge operating system.
- Add monitors to view vehicles at entry boom.

RESULT

- Time Savings per vehicle = 44% - 58%
- Average of 60 trucks/h if above is eliminated.

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WP2.4 Assess the current and future demand for static weighing

OBJECTIVE

To determine the throughput required at weighbridges, and to establish thresholds when weighbridges must be upgraded.

FINDINGS

- By 2030 – 26 of 70 (37%) weighbridges will exceed capacity.
- By 2040 percentage will increase to 61%

MEASURES REQUIRED TO INCREASE THROUGHPUT:

- Increase the typical weighbridge throughput of 60 trucks/h
- Decrease the number of vehicles that are directed to the scale to be weighed statically.


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WP3.1 Review SANRAL WIMe concept

OBJECTIVE

To obtain a full understanding of the background, previous work, vision and envisaged uses of WIM Enforcement.

FINDINGS

- Check on progress made by NRCS in terms of WIM enforcement.
 - Determine required thresholds to match accuracy threshold for WIM enforcement
 - Research how many vehicles might potentially be apprehended.
- Investigate the accuracy of ANPR and the possibility to supplement or even replace it with (RFID) tags.
- Review the judicial challenges and determine what changes would be required to the National Road Traffic Regulations (NRTR). 
- Investigate the potential benefits of large-scale integration of Virtual WIM with the RTMS self-regulation accreditation scheme.
- Review data sharing possibilities and requirements.

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WP3.2 ANPR and RFID tag requirements

OBJECTIVE

To determine the most appropriate vehicle identification mechanism and to set clear requirements and expectations.

FINDINGS

- Overall ANPR success rate on Toll System:
 - 80% for small trucks
 - 60% - 70% for large trucks
- Overall ANPR success rate on Weighbridges:
 - 35% - 55%
- It is concluded that ANPR on its own cannot be used to identify vehicles for law enforcement purposes.
- Use DSRC/RFID to enhance identification.

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WP3.3 NRCS Requirements

OBJECTIVE

To determine NRCS requirements for WIM that are both acceptable and achievable.

*European=5%
(95% Confidence)*

FINDINGS

1. Are the accuracy requirements achievable?
 - Large vehicles = Yes; Smaller vehicles might need lower accuracy
2. What might the cost implications be?
 - ±R2m per lane plus construction cost for 100m section
3. What should the prosecution grace be?
 - Estimated at 12%
4. What might the strike rate be?
 - Tested on weighbridge data = 3%
5. What might the impact on overload control be?
 - Hardly any prosecutions

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WP2 Overload Control Operations

- **WP2.3 Review International Practices**
- **WP2.5 WIM screening thresholds**
- **WP2.6 Develop solutions for improving weighbridge throughput**
- **WP2.7 Auditing strategy and KPIs for weighbridges**

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WP3 WIM Enforcement

- **WP3.4 Identification of judicial obstacles**
- **WP3.5 RTMS self regulation accreditation scheme**
- **WP3.6 Calibration of WIMs**
- **WP3.7 Integration of WIMe with static weighbridge operations**
- **WP3.8 Data management and processing**

THE FUTURE OF WIM IN SOUTH AFRICA ?

- **WIM enforcement – difficult road ahead**
 - NRCS interim requirements to be finalised
 - Type Approval & On-Site Verifications
 - Tolerance discussions with NPA
 - Prosecution Guidelines to be drafted
 - Traffic Regulations to be drafted
 - MOA to be drafted with Issuing Authorities
 - SLA's to be drafted with Provincial Judiciaries
- **WIM for statistical purposes/screening – bright future**
 - Remainder of research work packages will be a determining factor.
 - Possibility of pilot projects
 - Tender specifications to be finalised
 - Tenders to be issued
 - Enhancement of automated screening and new installations as weighbridges are upgraded

THANK YOU!

Michelle Van Der Walt

Project Manager: Traffic Monitoring

vdwaltn@nra.co.za

Layton Leseane

Project Manager: Overload Control

leseanel@nra.co.za