Western Cape
Government

Western Cape Mobility Department

Performance-Based Standards Policy

July 2024

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List of Abbreviations

Abbreviation	Definition
ABS	Anti-lock Braking System
AVL	Abnormal Vehicle Load
A/L	Abnormal Load
AVP	Abnormal Vehicle Permit
CoCT	City of Cape Town
COTO	Committee and Transport Officials
CSIR	Council for Scientific and Industrial Research
DoI	Western Cape Department of Infrastructure
DoT	National Department of Transport
EBS	Electronic Braking System
MEC	Members of the Executive Council
MINMEC	Ministers and Members of the Executive Council
NaTIS	National Traffic Information System
NRTA	National Road Traffic Act
OEM	Original Equipment Manufacturer
LEF	Load Equivalency Factor
PBS	Performance-Based Standards
RTMS	Road Transport Management System
SANS	South African National Standards
WC	Western Cape
WCG	Western Cape Government
WCMD	Western Cape Mobility Department

Glossary

Term	Description
Abnormal Vehicle	A vehicle or combination of vehicles that, by virtue of its dimensions or mass, or combination of both, does not comply with the requirements of the NRTR.
Area Permit	A permit that covers all travel on a specified network of roads by a vehicle that is eligible for continuous travel for a specified period of time.
Axle	The NRTR defines an axle as a device or set of devices, whether continuous across the width of the vehicle or not, about with the wheels

	of the vehicle rotate and which is so placed that, when the vehicle is travelling straight ahead, the vertical centrelines of such vehicles would be in one vertical plane at right angles to the longitudinal centreline of such vehicle. "Axle Set" is a single set, a tandem/tridem/quad axle set or a twin-steer axle set. "Oscillating Axle" is any axle which complies with the following provisions: a) The axle has 4 wheels and 4 or 8 tyres attached thereto, consisting of 2 pairs of wheels, b) Each such pair of wheels is mounted on a separate axle so affixed to the motor vehicle as to share the load equally between the 2 wheels and to permit oscillation of the separate axles in a vertical transverse plane which is at right angles to the longitudinal centreline of the vehicle; and c) The centre of each such wheel is at least 500mm distant from the centre of every other wheel fitted to the motor vehicle. "Twin Steer axle set" is a tandem axle set with single tyres, where both axles are connected to the same mechanism to steer similarly.
Axle Group	A series of axles is an axle group if the axle spacings are all less than 2.4m.
Axle Spacing	The longitudinal distance between centrelines of any two adjacent axles.
Crawl Speed	Not exceeding a uniform speed of 10km/h.
Divisible Load	A payload that is either a fluid or has more than one separate component even though these components may be temporarily connected for handling, storage or transport.
Dual Tyre Spacing	The distance from the centre of the tread of one tyre to the centre of the tread of the closest tyre is similarly mounted on an axle.
Effective Width	The dimension used in calculating loads on bridges is determined by adding 1.2m to the width of a vehicle measured to the outside of the tyres. If the distance between adjacent tyres exceeds 1.2m, such excess must be deducted from the effective width.
Equivalent Single Wheel Mass	The isolated single-wheel load which, operating at 520kPa cold tyre pressure would produce the same effect in a particular road pavement as that produced by all the wheels in that group.

Identical Vehicle	A vehicle (or vehicle combination) can be considered identical for operating on multiple permits if it meets all of the following criteria: • The same model prime mover. • Identical axle spacing. • Same tyre size. • Identical inner and outer wheel track. • All units in the combination have sufficient GVM for the load in question. • All units in the combination have sufficient axle ratings for the load in question. • All units in the combination have identical 5th wheel/hitch positions.
Load Index	This is a numerical code on a tyre sidewall which specifies the maximum load the tyre can carry (at the speed indicated by the tyre's speed rating) and is specified by the manufacturer. Tyres with the same load index, regardless of tire size, may (but not always) carry the same load, but will require substantially different inflation pressures. An equal or greater load index does not always correspond to equal or greater load capacity at all inflation pressure settings.
Multiple Trips	The separate movement of one particular vehicle over the same route with similar payloads within a limited time period.
Overdimension Permit	A term used for the permit issued on behalf of the WCG to allow the movement on a public road of a motor vehicle that exceeds the dimension limits stated in Regulation XX of the NRTR.
Overweight Permit	A term used for the permit issued on behalf of the WCG to allow the movement on a public road of a motor vehicle that exceeds the mass limits stated in Regulation XX of the NRTR.
Permit Issuing Officer	The person who issues the overweight permit on behalf of the road controlling authority.
PBS	Performance-Based Standards is an approach that uses modern technology to model the behaviour of heavy vehicles, which makes it possible to design dynamically more stable and hence safer vehicles that can be operated on roads under various conditions with greater ease and efficiency and that results in improved transport productivity, safety and protection of road infrastructure. The PBS approach applied to vehicles thus focuses on how a vehicle or

	combination of vehicles performs when undergoing certain prescribed low- and high-speed directional and non-directional manoeuvres. This is a departure from the traditional prescriptive approach that specifies what a vehicle should look like in terms of maximum mass and dimensions.
Register of Abnormal Vehicles	A record of abnormal load vehicles, details of which have been submitted to, and which have been accepted by the Provincial Authorities as being suitable for the conveyance of abnormally heavy loads.
Semi-trailer	A trailer having no front axle and so designed that at least 15% of its tare is superimposed on and borne by a vehicle drawing such trailer.
Single Trip	A continuous movement under permit by one vehicle. This includes a movement in one general direction with stops totalling no more than two days but without change of load. Also included is an outward plus return journey over substantially the same route with stops totalling no more than two days with or without a change of load.
Smart Truck/PBS vehicle	A vehicle or combination of vehicles that complies with the infrastructure and safety performance standards as defined in the document "Smart Truck Programme: Rules for the development and operation of Smart Trucks" (latest version) as part of the performance-based standards research programme in South Africa that has been approved by the Department of Transport and the Smart Truck Review Panel as a Performance Based Standards (PBS) vehicle and may carry a divisible load. Smart Trucks are heavy vehicles that have been designed and tested against a set of vehicle performance standards such as startability, gradeability, acceleration capability, frontal swing, tail swing, slow speed swept path, tracking ability on a straight path, static rollover threshold, rearward amplification, yaw damping and high-speed transient off-tracking. Smart Trucks that do not meet all the legal vehicle requirements as specified in the NRTR (normally i.t.o. combination mass and/or overall length) are referred to as High-Capacity Vehicles (HCVs) due to their increased payload with regards to mass or volume. They are assessed against predefined performance standards which, depending on the payload density, are generally more onerous to meet than the prescriptive requirements. The term "Smart" is therefore used to indicate that these vehicles use the latest technology to enhance safety

	performance. Smart Trucks are generally limited to approved higher-order routes, thereby optimising the road network by achieving a better “match” between the road infrastructure and the vehicle.
Truck tractor	A motor vehicle designed or adapted for a) Drawing other vehicles; and b) Not carrying any load other than that imposed by a semi-trailer or by ballast but does not include a tractor.

Introduction

1.1 Terms of Reference

The Western Cape Government (WCG) is in the process of reviewing its Performance-Based Standards (PBS) draft policy from 2017, aiming to develop and implement a PBS policy under the Abnormal Load Permit System in the Western Cape (WC). While the National Department of Transport (DoT) initially supported the PBS programme in 2006, relatively little communication of the DoT's stance on the programme has been received from the former Ministers of Transport. Some of the recent communications are outlined in ANNEXURE A.

Although former Minister of Transport Ms. Chikunga decided in September 2023 that the ministry will no longer grant PBS vehicle approval, this relates to "principle approval" (explained in more detail in the following sections) which does not apply to PBS vehicles. As such, the latest communication from the DoT confirms that the PBS pilot project may continue as before until such time that the Minister and Members of Executive Council (MINMEC) make a decision regarding the future of the PBS approach in South Africa. Although meetings where the Smart Truck programme was planned to be held by MINMEC in November 2023, no discussion has taken place to date. With the change in the Minister of Transport, it is unclear what the new Minister's (Ms Barbara Creecy) position on PBS is. It is, therefore, argued that until further notice, provinces may independently decide whether PBS permits may be issued.

These recent developments warrant and support the review and updating of the WC's existing PBS draft policy from 2017. The CSIR's ***Smart Truck Programme: Rules for the Development and Operation of Smart Trucks as part of the Performance-Based Standards Research Programme in South Africa*** (v35 from April 2024) forms the basis of the draft policy with additional clarifications gathered from WCG officials in the Western Cape Mobility Department (WCMD) and Department of Infrastructure (DoI), where applicable.

1.2 Background to PBS in South Africa

In South Africa, as in most countries around the world, heavy vehicle use on the road network is controlled predominantly by prescriptive regulations. These regulations, in many cases, differ significantly from one country to another. Efforts in various parts of the world (including the South African Development Community Region) to achieve regional harmonisation and effective road use have had limited success.

Another approach is to consider PBS, which offers the heavy vehicle industry the potential to achieve improved productivity and safety through innovative and optimised vehicle design. PBS vehicles are designed to perform their specific tasks as productively, safely and sustainably as possible, and to operate on networks that are appropriate for their level of performance. The basic principle of PBS is matching the right vehicles to the right tasks. Heavy vehicles operated under a PBS framework are typically limited to travel on a subset of the road network to ensure the protection of the road infrastructure and acceptable safety levels. As a result of successful initiatives in Australia, New Zealand and Canada, the application of performance-based standards in the heavy vehicle sector in South Africa was identified by the CSIR in 2006 as a research area warranting Parliamentary Grant funding because of the potential achievable benefits in terms of transport efficiency, road/vehicle safety and the protection of road infrastructure. The DoT's National Overload Control Strategy (Feb 2003) also included a recommendation to investigate the potential benefits of a PBS approach to heavy vehicle design in terms of road infrastructure protection and improved heavy vehicle safety.

As part of the Smart Truck research programme, a need was identified to design, manufacture and operate several PBS demonstration projects in South Africa. The aim was to gain practical experience in the performance-based standards approach for heavy vehicles, to quantify and evaluate the potential safety and to assess the benefits of this approach to road freight transport. The fleets of participating operators of these vehicles are required to be accredited through the Road Transport Management System (RTMS) self-regulation programme.

The vehicle performance standards that have been used to design PBS demonstration vehicles cover high and low-speed directional and non-directional manoeuvres. This includes parameters such as startability, gradeability, acceleration capability, frontal swing, tail swing, slow speed swept path, tracking ability on a straight path, static rollover threshold, rearward amplification, yaw damping and high-speed transient off tracking. In short, PBS vehicles are tested against 16 stringent safety standards and 2 infrastructure standards to ensure they fit the existing road network and are safe.

1.3 Intention of the WCG PBS Pilot Project Policy

The Western Cape Government (WCG) acknowledges that the Smart Truck research programme is currently operating within South Africa, with over 2,359 PBS-registered vehicles participating in the pilot project as of 31 July 2024. It must be noted that the majority of these Smart Trucks are operated in the Limpopo, KwaZulu-Natal and Mpumalanga provinces, with only six vehicles in operation in the Western Cape, accounting for less than 0.3% of the total PBS vehicle fleet in the country. The approval procedures for a PBS application are set out in the document entitled "Smart Truck Programme: Rules for the Development and Operation of Smart Trucks as part of the performance-based standards research programme in South Africa" prepared by the CSIR and the Smart Truck Review Panel and updated regularly (latest version 34 was released December 2022 but an update is currently in review phase).

Although the (technical) approval of a PBS safety and bridge & road wear assessment reports are dealt with by the Smart Truck Review Panel, the rules require that each PBS vehicle combination obtains a valid Abnormal Vehicle Registration (AVR) and Permit (AVP) which exempts the vehicle from the National Road Traffic Act (NRTA). In terms of Section 81 of the NRTA, only the relevant Member of the Executive Council (MEC) WCG can exempt vehicles from the NRTA within the Western Cape. This exemption applies to any vehicle that doesn't comply with one or more regulations in the NRTR, including the traditional indivisible abnormal loads. To grant such an exemption, the relevant MECs (Mobility and Infrastructure in particular) must have a holistic view of the Smart Truck programme, as well as its intentions, limitations, and implications both in the short and long term. Therefore, this policy intends to set out the parameters under which PBS permits will be issued.

This policy contains detailed procedures for determining conditions under which a PBS permit may be issued. It has been developed to satisfy the following objectives:

1. To protect road network facilities from vehicle loads that may lead to premature structural deterioration.

2. To process permit applications consistently and with minimum administration and technical effort.

3. To provide guidance to the transport industry on road network limitations to enable the development of better vehicles for the transport of heavy loads.

4. To provide guidance to the suppliers of trucks/truck tractors and the designers and manufacturers of heavy vehicle trailers.

5. To reduce vehicle overloading with due regard to the safety of vehicle operations and other road traffic participants.

Support for the PBS Pilot Project is to be encouraged as per the national Department of Transport (DoT) letter by the then Minister of Transport, Mr Jeff Radebe, dated 10 January 2006. A copy of the letter is provided in ANNEXURE A.

1.4 Recent Developments Regarding PBS Implementation in South Africa

There has been little input or feedback from the National Government on the future of the project since its inception. The CSIR originally submitted and presented (October 2020 and March 2021, respectively) the "Smart Truck Evaluation Report" to DoT which was since planned to be tabled at a Committee and Transport Officials (COTO) and Ministers and Members of the Executive Council (MINMEC) meeting at its earliest possibility. The former Minister of Transport issued two superseded letters to all Smart Truck/PBS Pilot Project Stakeholders in September and November 2023, respectively. These letters have caused further uncertainty on the future of the PBS implementation. Although the letters (dated Sept./Nov. 2023) highlight the benefits of the Smart Truck/PBS Pilot Project, the then Ministers decided to bring the pilot project to a close with currently licensed vehicles allowed to continue operation, but no new permits may be issued until a decision has been made by the COTO and MINMEC. However, the second letter from the then Minister essentially retracted the first letter and also referenced principal approval (i.e., the vehicle does not comply with the Road Traffic Act). However, principal approval is not required for most PBS vehicles since individual elements of the vehicle combination (truck/truck tractor and trailers) comply with the NRTR. Concept Approvals (as defined in the Smart Truck Rules document) as a result are not affected by the letters from the former Minister and, therefore, it can be argued that it is at the province's discretion to renew/issue new permits.

More recently, in early 2024, the DoT requested an updated version of the Smart Truck Pilot Project evaluation report which had originally been submitted and presented to the DoT in October 2020 and March 2021 respectively. An updated evaluation report was submitted to the DoT in February 2024. No further communication has since been received from the DoT. At the time of writing (August 2024), the newly appointed Minister of Transport, Barbara Creecy, had not yet taken a stance on the PBS policy.

1.5 Enforcement of the Policy

The WCMD is the authority responsible for issuing abnormal vehicle permits in the Western Cape, which includes PBS permits. In South Africa, the law requires all vehicles that are either overweight or oversized to produce a valid Abnormal Load Permit when requested. Vehicles found to be in contravention of their permit are liable to be prosecuted in terms of the legal vehicle mass and dimension limits set within the NRTA.

1.6 Revision and Distribution of Policy

It is envisioned that this policy will be revised on a bi-annual basis or when the Smart Truck Programme is updated, whichever comes first. It is the intention that all revisions of this policy be subject to review by the Smart Truck Review Panel, which can recommend changes to the policy where relevant. Any permanent changes to this policy will be undertaken through a revision update once approved by the WCG Ministers of the Executive Committee (MEC).

It is proposed that this Policy reside on the WCG website where general information is provided relating to abnormal vehicle usage and obtaining permits: https://www.westerncape.gov.za/service/permits-abnormal-loads-and-vehicles.

It is further proposed that notifications of any changes to this Policy be advertised to freight and heavy vehicle associations, transport consultants and/or any other relevant stakeholders to raise awareness.

2 Application for Concept Approval and Principle Approval

The following process is required to be followed for an interested party to participate in the Smart Truck Programme. Refer to ANNEXURE B for more detailed guidelines and Table 1 for a concise procedure summary of the application and implementation processes.

2.1 Certification in terms of the Road Transport Management System (RTMS)

RTMS certification (in terms of the South African National Standards (SANS) 1395 Part 1:2019) **of the fleet in which the proposed Smart Truck(s) will operate is required for a minimum of six months prior to the issuing of PBS permits. This requirement is to ensure that the transport operator, and particularly the relevant fleet, is being managed and operated in accordance with prescribed minimum safety and loading standards.**

2.2 Application for Concept Approval and Principle Approval (if required)

The first step in a Smart Truck demonstration project is to identify one or more concept designs and to identify the proposed routes on which the Smart Truck(s) would operate. The concept design must indicate key **dimensions, axle and axle unit masses of the vehicle combination**. The applicant must also indicate the **commodity/commodities to be transported**. If the proposed vehicle is a Level 2 or higher in terms of the Australian requirements for PBS vehicles, a **detailed description of the route(s) on which the proposed vehicle will operate, must be provided, i.e., the entire route(s) must be described from origin to destination**. Final approval of the application will be limited to the approved route(s).

Once the above information has been compiled, the applicant is required to **submit a letter requesting Concept Approval to the relevant Provincial Abnormal Load Permit Office(s**). **Should one or more of the vehicles making up the PBS vehicle combination not comply with the NRTA Regulations, principal approval is also required from DoT** as per the requirements described in TRH11. Copies of these letters of application must be submitted to the Chairman of the Smart Truck Review Panel.

Depending on the overall length and maximum combination mass of the proposed PBS vehicle and/or the routes on which the vehicle is proposed to operate, the **WCMD and DoI may, at its discretion, require additional information at the Concept Approval stage**. Such information could include a Traffic Impact Assessment by a Registered Professional Traffic Engineer and/or Geometric Design Impact by a Registered Professional Geometric Design Engineer of parts of or the whole route that are of concern from a Traffic Engineering/Geometric Design/Infrastructure perspective, the bridge assessment and the road wear assessment. Provincial Road Authorities may require upgrades to the road geometrics and access standards before the commencement of the operation of PBS vehicles.

Concept Approval is generally given for a period of five years, subject to the renewal of the annual Exemption Permits. This is to enable the **operator to recover the capital investment of the Smart Trucks**. However, non-compliance with the permit conditions may result in the withdrawal of the Exemption Permit (see APPENDIX C).

The following documents must be submitted with the application for concept approval:

- **General arrangement drawing of the proposed PBS vehicle combination indicating key dimensions and masses,**
- **A valid RTMS certificate, and**
- **Detailed route map(s) for Level 2, 3 or 4 PBS vehicles.**

The definitions of ***Levels 1***, ***2***, ***3*** and ***4*** as applied to South African roads are:

1. **Level 1:** All public roads allowing access to vehicles up to 18.5 m for a tractor semitrailer and 22 m for a bi-articulated vehicle combination. Level 1 PBS vehicles that exceed the permissible maximum combination mass limits will only be allowed to operate on approved routes.

2. **Level 2:** Public roads allowing access to vehicle combinations up to 30 m in length. Level 2 PBS vehicles must have a Low-Speed Swept Path no greater than 8.7 m to negotiate a 90-degree turn, the Tail Swing is no greater than 0.35 m and the Tracking Ability on a Straight Path is no greater than 3.05 m. The routes are typically national highways with short and wide portions from the highway to the depot.

3. **Level 3:** Privately owned or remote lightly trafficked routes allowing access to vehicles up to 36.5 m road trains. A road train requires a Low-Speed Swept Path no greater than 10.6 m to negotiate a 90˚ turn, the Tail Swing is limited to 0.35 m, and the Tracking Ability on a Straight Path is limited to 3.15 m.

4. **Level 4:** Privately owned or remote lightly trafficked routes allowing access to vehicles up to 53.5 m road trains. A road train requires a Low-Speed Swept Path no greater than 13.7 m to negotiate a 90˚ turn, the Tail Swing is limited to 0.5 m and the Tracking Ability on a Straight Path is limited to 3.35 m.

In cases where a truck or trailer manufacturer wishes to develop a PBS vehicle combination (to market to potential customers), concept approval is not required, and the PBS assessments may be carried out and submitted to the Review Panel without a letter of concept approval or proof of RTMS certification. However, Concept Approval letters (per province) and RTMS certification will have to be obtained by each transport operator wanting to purchase any pre-approved PBS combinations.

2.3 Detail Design and Assessment

On receiving a letter of **Concept Approval from all relevant Provinces and a letter of Principle Approval from DoT (if required)**, the **applicant may proceed with a detailed design of the proposed vehicle combination followed by the following PBS assessments**:

- **Bridge and road wear assessment** (if the maximum combination mass exceeds 56 tonnes).
- **Safety assessment in terms of the Australian National Heavy Vehicle Regulator's PBS assessment requirements** (NTC, 2020).

2.3.1 Road Wear Assessment

The PBS Road Wear Assessment Report must demonstrate that the proposed Smart Truck does not cause excessive road wear. The original requirement was that **the PBS vehicle must cause less road wear per ton of payload than the "baseline" vehicle combination that is currently operational and that the PBS vehicle will replace.** This is determined by calculating the Load Equivalency Factor (LEF) per ton of payload of the proposed PBS combination and the baseline vehicle combination based on the Mechanical-Empirical methodology that is the basis of the SA Pavement Design Manual. The baseline vehicle must be a realistically efficient standard legal vehicle combination for the freight task in question.

Sufficient data have now been collected to specify a maximum limit of the LEF per ton of payload, irrespective of the road wear characteristics of the baseline vehicle. Based on the current eight typical SA pavements that are being used for the road wear assessment, the proposed PBS vehicle must have a LEF per ton of payload of less than or equal to 0.2. There are two exceptions:

- Rigid truck and drawbar combinations must have an LEF per ton of payload of less than or equal to 0.25.
- Tractor semi-trailer combinations with quad-axle semi-trailers must have an LEF per ton of payload of less than or equal to 0.38 with the provision that the PBS vehicle must have a lower LEF/tonne of payload than the equivalent of the baseline vehicle. Over and above the improved road wear requirement for PBS vehicle designs, applicants (transport operators, consignors, manufacturers) will be required to explore the feasibility of using dual tyres in the quad where practically possible.

Additional exceptions to the 0.2 LEF/ton payload limit may be reviewed by the Review Panel on a case-by-case basis, depending on the road wear characteristics of the baseline vehicle and other supporting factors.

The PBS vehicle will be assessed with 315 tyres fitted on the truck/truck tractor steering axle(s). If the PBS vehicle passes the road wear impact assessment, the PBS vehicle may be fitted with either 315 or 385 tyres on the truck/truck tractor steering axle(s). For truck tractor semi-trailer combinations with quad-axle semi-trailers using wide-based single tyres in the quad-axle unit, the truck/truck tractor steering axle(s) must be fitted with 385 tyre sizes to minimise the road wear characteristics of such combinations.

2.3.2 Bridge (Structure) Assessment

If the proposed PBS Level 2, 3 or 4 Smart Truck does not comply with Regulation 241 of the NRTR (the "legal" bridge formula) (DoT 2013), **an Abnormal Load Bridge Formula** (ALBF) (DoT, 2010) **assessment must also**

accompany the application. The ALBF assessment should ensure a minimum factor of safety of 30% for the proposed Smart Truck unless the route(s) on which the Smart Truck(s) will operate either have no structures or the structure is limited such that a more detailed assessment can be done based on actual bridge and culvert span lengths and/or actual bridge design loads, e.g., TMH7 NC loading. In terms of the revised (first principle) approach for assessing structures, the Bending Moment Factor may not exceed 0.85 and the Shear Force Factor may not exceed 0.85. These factors are determined by comparing the maximum BM and SF effects generated by the proposed PBS vehicle on a range of single-span and two- and three-span continuous structures with a conservative bridge design load (NA and NB30 loading as defined in the SA Bridge Design Code, TMH7). Should either of these factors be exceeded, a more detailed assessment (route clearance) will be required. Level 1 (General Accessibility) Smart Trucks must comply with Regulation 241 of the NRTR, the "legal" bridge formula.

2.3.3 Safety Assessment

The PBS safety assessment must be carried out by a PBS assessor accredited by either the Australian or South African PBS Review Panels. Refer to https://www.nhvr.gov.au/road-access/performance-based-standards/useful-contacts. **The safety assessment must be based on the Australian National Heavy Vehicle Regulator's PBS assessment requirements** (NTC, 2020). However, **some changes in the performance standards have been implemented to accommodate the road geometry and heavy vehicle regulations in South Africa, which vary from those in Australia**. The following deviations from the Australian PBS assessment rules apply:

- The **Tail Swing** (TS) standard was amended to be measured relative to the widest point on the truck tractor body, and not relative to the entry tangent. The rigorous interpretation of the Australian PBS assessment rules requires the tail swing to be evaluated from the entry tangent of the reference point in question, which penalises combinations with narrow truck tractors or steer track width.

- **Tracking Ability on a Straight Path** (TASP). The Australian TASP performance criteria are relaxed by 0.05 m for each PBS level. (The primary reason is that in South Africa the permissible maximum width of a heavy vehicle is 2.6 m compared with a maximum width of 2.5 m in Australia. In addition, South Africa generally has wider vehicle lanes compared with Australia).

- **Maximum of Difference** (MoD) and **Difference of Maxima** (DoM). The performance levels for MoD and DoM in Australia are closely aligned to their vehicle regulations and were found to be unduly conservative for South African heavy vehicle designs (truck tractor/semi-trailer combinations). A review (Kienhöfer et al., 2016) found that the Australian regulations in this regard are one of the most conservative worldwide. The Smart Truck Review Panel approved the recommendation to adjust the MoD performance criterion from 0.40 to 0.55 m and the DoM criterion from 0.20 to 0.25 m.

- **Yaw Damping Coefficient** (YDC). The simulation for YDC must be conducted at 100 km/h. This is distinct from the Australian PBS Assessment Rules in which the vehicle's "certified speed" is used.

- **Car-carrier combinations**: A PBS car-carrier that meets the Level 2 (but not Level 3 or 4) criteria for Startability and Gradeability A will be approved as a Level 1 car-carrier. However, such PBS car carriers must at all times comply with Regulation 239 (3) of the NRTR, which limits the maximum combination mass to 5 times the actual mass on the drive axle or axle unit. For the motivation of this policy, see De Saxe et al. (2019) under References.

It should be noted that the payload density or specific gravity (SG) of a proposed PBS combination has a critical influence on the results of the safety assessment. For bulk commodities, the commodity and associated SG must be clearly specified, along with the source of this data and the methodology used to determine the centre of gravity heights. Where multiple commodities are to be transported by the combination, the worst loading case considered must be identified and described. If the worst-performing loading case is not easily evident, all variants must be assessed, and performance reported.

2.3.4 Heaping of Bulk Commodities in Side-tipper Trailers

In cases where a PBS safety assessment has been conducted without allowing for heaping of the transported product, the product loading height must be restricted to the lip of the bin. If 30-degree surcharge heaping or more has been modelled, then the vehicle will be assumed to be able to transport a bulk commodity that does not exceed the permissible maximum mass of the combination. This is however subject to approval from the provincial authorities. If heaping of less than 30 degrees surcharge is reported, the operator will be responsible for the development of a procedure to ensure compliance with the maximum loading height and to obtain approval from the respective provinces and Smart Truck Review Panel as to whether heaping in this configuration will be allowed and whether the methodology proposed is acceptable. If these requirements are not met, the combination will not be allowed to operate with the heaping of the transported product.

As per the Australian PBS rules, a vehicle must pass ALL performance standards in accordance with the level of road access being sought. The overall road access level achieved is determined by the worst-performing standard. All standards need to be passed for any PBS applications.

2.4 Smart Truck Design Approval

The PBS safety assessment and bridge & road wear assessment reports, together with at least one concept approval letter (unless a truck or trailer manufacturer is applying for approval to market a design as detailed in Section 2.2) **must be submitted to the Smart Truck Review Panel for approval**. **The Review Panel may at its discretion invite one or more representatives of the applicant to attend a Review Panel meeting**. Should the **Review Panel not be entirely satisfied with the application**, further information such as a traffic impact assessment, geometric and/or structural route clearance may be required from the applicant.

2.5 Vehicle Manufacturing

On receipt of the final operational approval, the applicant may proceed to manufacture and purchase the vehicle components in accordance with the approved design.

2.6 National Traffic Information System (NaTIS) Registration

NaTIS registration and vehicle licensing processes should be followed once the vehicle combination is ready for operation.

2.7 Commissioning

Once the vehicle has been registered and licensed, a PBS vehicle commissioner accredited by the South African Smart Truck Review Panel will be required to verify the vehicle dimensions. This includes any other design features and requirements such as the motorised unit make and model, tyre sizes, abnormal load boards and warning lights **in accordance with the approved PBS design**.

Commissioning is an important process to ensure that PBS vehicles are compliant with the relevant NRTR and the applicable PBS safety assessment. The PBS Commissioner **must be accredited** at the time of conducting a PBS vehicle commissioning. It is the C**ommissioner's responsibility to ensure that each PBS vehicle combination has been manufactured in accordance with the approved PBS Safety Assessment and the conditions specified in the Concept Approval letters**. Before commissioning is conducted**, a pre-commissioning checklist must be completed by the transport operator or representative** (e.g., trailer manufacturer or Original Equipment Manufacturer (OEM)). The completed checklist must be sent to the vehicle commissioner, who will review the checklist to ensure that the vehicle is compliant before conducting the final commissioning of the PBS vehicle(s). The checklist for B-double vehicle combinations is provided in ANNEXURE G. The completed and signed checklist shall be attached to the commissioning report compiled by the accredited PBS commissioner. The completed and signed checklist shall be attached to the commissioning report compiled by the accredited PBS commissioner.

The following points should be noted:

- The **PBS Commissioner may not be the same person who conducted the PBS safety assessment**.
- The **Commissioner and Assessor may not be employed by the same organisation**.
- The **physical inspection and measuring of the vehicles** must take place **after the PBS Safety Assessment** has been approved by the Review Panel.
- The **accredited PBS Commissioner MUST attend to the physical inspection** and measuring of the vehicles. This function may not be outsourced to or supervised by another person.
- The Commissioner who conducts the commissioning of PBS vehicles MUST include the location of the commissioning as well as the Commissioner's name who carried out the inspection and measuring of the PBS vehicles in Paragraph 1 of the Commissioning Letter. An appropriate format for Paragraph 1 of the Commissioning Letter is: "The commissioning of the above PBS vehicle combination on (date) at (location) was conducted by Mr/Ms First Name, Surname"

2.7.1 Commissioning of Used Trailers

In cases where a trailer is not new, the following shall apply:

- If a **trailer is less than 12 months, no additional requirements are applicable during commissioning**.
- If the trailer is more than **12 months at the time of commissioning, a full Dekkra technical inspection report must accompany the PBS commissioning letter**.

- In cases where the trailers **are more than 5 years old, a letter from the trailer manufacturer and running gear OEM must be obtained** stating that the vehicle is still fit for purpose.

2.8 Operation

On **successful commissioning** of the vehicle combination, **a** PBS-compliant High-Capacity Vehicle period **permit will be issued by the relevant A/L Permit Office(s)** for **a maximum period of twelve (12) months**. The period permit will be **renewed annually, subject to adequate compliance of the Smart Truck to the permit conditions**.

2.9 Monitoring

Operational data as specified in Section 5.10 (Data Collection and Monitoring) is **required to be submitted to the relevant A/L Permit Office(s) as well as the CSIR monthly**. This is required to **monitor compliance and evaluate the benefits of the Smart Truck research programme demonstration projects**. Live Satellite tracking links must be provided to Administration Staff on request.

Table 1 - PBS Permit Application Procedure

No.	Activity	Responsible (Person/Party)
1	RTMS Certification	Operator/SANAS-accredited RTMS Auditor
2	Concept Design, proposed route(s)	Various incl. Consigner, Operator and Manufacturer
3	PBS application for concept approval (incl. routes) and principle approval (if required)	Transport Operator/Consignor/Consignee
4	PBS Concept Approval	Relevant A/L Permit Office(s)
5	PBS Principle Approval (if required)	National DoT
6	Detail Design	Trailer Manufacturer/OEM
7	PBS Assessment (Infrastructure & Safety)	Accredited PBS Assessor (e.g., CSIR/Wits/Australia)
8	PBS Design Approval	Smart Truck Review Panel
9	Manufacture	Trailer Manufacturer
10	NaTIS Registration	SABS/NRCS/WCG/DoT
11	Commissioning	Accredited PBS Commissioner
12	Operation and Monitoring	A/L Permit Office, Auditor & CSIR

3 Vehicle Design

The following features are required to be included in the vehicle design:

- Anti-lock Braking System (ABS) and/or Electronic Braking System (EBS).
- Retarders/Intarders.
- Side marker lights (truck/truck tractor and trailers).
- Xenon or LED headlights.
- Amber flashing strobe light (at least 900 mm in width) on the roof of the truck/truck tractor.
- Abnormal load signs front & back (text size 200 mm as per TRH11, Section 4). If the PBS combination length exceeds 22 m, the overall length must also be indicated on the board at the rear of the combination e.g. "ABNORMAL LENGTH VEHICLE – 27.4M" Smart Truck and RTMS boards on the front of the motorised unit. The Smart Truck board specifications are provided in ANNEXURE F.
- The name of the operator must be clearly displayed on the doors of the motorised unit (as a minimum).
- Vehicle management system (for monitoring driver performance including speeding, harsh braking/acceleration, and vehicle location).

The following features are available on some models of heavy vehicles and are recommended. One or more may become a requirement in the future.

- Rollover prevention systems such as Electronic Stability Control (ESC) and Electronic Stability Programme (ESP).
- Adaptive Cruise Control (Active distance control).
- Lane departure warning system.
- Driver fatigue warning devices.
- Tyre pressure monitoring and control.
- Driver Camera.

Nudge bars (bull bars) may be fitted, in some cases to meet the PBS MoD requirement. However, nudge bars may not extend beyond the outer edge of the front steer axle tyres.

4 PBS Permit Administration

4.1 Authority to Issue PBS Permits

PBS vehicle combinations that fall outside the legal limits (usually combination mass and/or overall length) are required to obtain an AVP, which can only be issued by the WCG for permits within their jurisdiction.

The WCG has appointed the Western Cape Mobility Department (WCMD) and the Western Cape Department of Infrastructure (DoI) to work jointly on the Abnormal Vehicle Load Permit process. The Transport Administration and Licensing team manages the administrative process, while the Traffic Engineering team is responsible for all technical assessment and related decisions. Only the Traffic Engineering team is involved in the Conceptual Approval process with the Council for Scientific and Industrial Research (CSIR) as the assessment is technical in nature. Because PBS is considered as a type of abnormal load vehicle, the permit application process follows the same permit process.

Where a movement involves national and municipal roads, the WCG (specifically the DoI) includes the South African National Road Agency SOC Ltd (SANRAL) and the City of Cape Town (CoCT) in the permit process, no other municipalities are included in the process. Applications that involve SANRAL and the CoCT routes are referred to the respective road authority for assessment and comment. However, the final decision for approval/ rejection of the permit lies with WCG (specifically with the DoI).

Where a movement involves more than one province, permits must be obtained from each province's responsible department/authority.

4.2 Where to Apply for a PBS Permit

Since the introduction of the WCG's online abnormal load permit system (https://live.avlwesterncape.org/logon?ReturnUrl=%2f) in 2021, applications for permits are not accepted in hard copy, fax or email format. PBS vehicle permits are required to be submitted on the website. Applicants need to select the PBS vehicle permit on the system, follow the instructions to fill in the required information and submit the applications together with supplementary documents such as the approved PBS assessment reports. Permits are issued electronically in PDF format.

4.3 Types of PBS Permits

The WCG accepts and issues both PBS Area and Route permits, which allow the operation of the PBS vehicle(s) for a continuous period (up to 12 months as per TRH11 requirements) along a known route or routes, provided that:

- A route clearance, is undertaken to determine the suitability of such vehicles to travel along the proposed route,

- The bridge assessment confirms that the bending and shear values for all structures do not exceed the maximum allowable 85%, and
- The maximum combination mass is less than 70% of the maximum allowable mass in terms of Table 3.1 of the TRH11.

Route clearance should be provided only at the discretion of the Traffic Engineer and the Permit issuing Authority. The majority of PBS vehicles on South Africa's roads are within the normal of standard transport vehicles (22 m), thus not requiring route clearance unless the nature of the planned sections of the operated route/roads requires a route clearance or traffic impact assessment.

4.4 Processing Times

Administrative officers will make every effort to ensure that the processing of the PBS abnormal vehicle permit applications are undertaken timeously.

Permit processing times can vary depending on the significance of the AVL, as it can take up to 2 weeks if both SANRAL and CoCT reviews are required. However, PBS permits are normally processed within a few working days as most of the technical assessments are done through the Review Panel process. As a general guide, the times shown in Table 2 may be taken as an indication of approximate processing times.

Because AVL permits need to be applied for separately in each province, WCG has no authority to issue permits for an AVL to travel in other provinces, hence the 3 weeks permit processing time can be expected.

The processing of permits should be completed within these times from receipt in the processing office of the complete and accurate information which is required for processing the application.

Table 2 - PBS Permit Processing Time

Permit Type	Processing Time (Working Weeks)
Travel within Western Cape Province only	Up to 2 Weeks
Travel extends beyond the Western Cape Province	3 Weeks

4.5 Administration Charges

A permit processing fee shall be charged for each permit application in accordance with the following scale. This fee goes towards recovering the administration costs incurred.

A full breakdown of the various abnormal load fees applicable is published in the Government Gazette annually.

Table 3 - PBS Permit Fees

Permit Application	2025 Fee (ZAR)
PBS Vehicle Permit with Mass	***As per national and provincial directives***
PBS Vehicle Permit without Mass (Dimensions Only)	***As per national and provincial directives***

Examples of PBS vehicles without mass include car carriers and certain passenger vehicles.

The PBS fee of [***TBD***][1] for a vehicle permit with mass is the maximum annual fee that can be charged per PBS vehicle combination, regardless of the number of provinces it operates in. If a vehicle crosses provincial boundaries, the respective provincial departments must agree on the distribution of the fee among them. While an equal split of fees between provinces is often suitable, exceptions may be made in cases where a province's route constitutes less than a certain percentage of the total kilometres travelled. However, this is subject to the agreement between the provincial departments.

This PBS Vehicle Permit fees are outlined in Table 3 include the basic administration fee. Payment of the fee is required after the assessment and before the issuance of the permit.

The PBS area permit includes the standard permit processing fee together with an additional charge which covers the extra costs incurred in the investigation of the routes specified on the permit application.

- Fees shall accompany the permit application unless special arrangements are made to collect the fees in another manner.
- The system does not allow for amendments or changes. If the applicant is satisfied with the application assessment, they can submit the application and only pay once the application is processed. Payment is only processed when all parties are satisfied.
- Fees shall be paid into the account of the WCG administrator's office who process the permit application.
- Refunds may be considered by the Department if permits are not used.
- For abnormal loads, cancellations or refunds are generally not considered; however, haulers can request refunds, which will be evaluated on a case-by-case basis.
- Applications that do not meet the Department's demand are rejected and a new application is required.

4.6 Application for PBS Permit

Operators should complete the required online forms, supplying all the information requested. Specific points of origin and destination of movements should be given as well as the proposed route. A set of road maps and/or routes, as approved in the concept approval letter, suitably marked up, or Google Earth files should accompany the application. Additionally, a list of the commodities or reasoning for the purpose of the vehicle (if the application is for a vehicle without mass) to be carried should be included in the general description of the payload.

4.7 Issuing of the PBS Permit

The permit issuing officer issues the permit and the permit issued may include conditions as deemed appropriate by the technical engineer or issuing officer. These conditions include, inter alia, the following:

Table 4 - PBS Condition of Permit

No.	Condition	Description
1	**Number of Vehicles in Application**	The PBS approval letter will stipulate the number of PBS vehicles for which approval is granted.
2	**Specially Classified Registration**	All PBS vehicles will be classified as "Specially Classified" in terms of their NaTIS classification and as such will require permits for the duration of their use.
3	**Maximum Axle and Unit Loading**	The maximum axle and axle unit loading will not be exceeded in terms of the NRTA.
4	**Date of Operation**	The PBS vehicles shall only commence operation once the PBS assessment has been approved by the WCG and permits have been issued.
5	**RTMS Certified**	The company which owns the PBS vehicle(s) must be RTMS certified and must remain so for the duration of the permit.
6	**Route Limitation**	These vehicles may only operate on public roads within the framework of RTMS and PBS accreditation.
7	**Report Monitoring**	Data regarding all Smart Truck operations and movements must be submitted to the WCG, the Smart Truck national committee and the CSIR on a monthly basis (as specified in the Smart Truck Rules document). PBS permit holders are requested to proactively submit these monthly reports, without awaiting a formal request from the WCG or the permit offices.
8	**Vehicle Tracking**	The Department must be given access to the PBS vehicle tracking system so that the location of the PBS vehicle can be monitored from time to time. Such access is only required for approved PBS vehicles, and it is the Operator's responsibility to provide access.
9	**Permit Conditions**	Permit conditions may be changed at the discretion of the Department and permit fees are applicable for the operation of the vehicle(s) in the Western Cape.
10	**Distance between PBS Vehicles**	No travelling in a convoy of PBS vehicles is allowed.

5 Smart Truck Requirements in the Western Cape

Once a permit has been issued by the WCG issuing officer, the Smart Truck is permitted to be operated on the respective approved routes. The following points are to be noted regarding the operation of Smart Trucks in the Western Cape.

5.1 Vehicle Requirements

5.1.1 Manufacturer's Warranty

Vehicle combinations to be under the manufacturer's warranty at the time of the commissioning of the Smart Truck i.e., all vehicle components must be relatively new. PBS vehicles will only be granted permits with a valid, unexpired approval issued from a trusted, unbiased party such as the CSIR and RTMS.

5.1.2 Vehicle Tracking

All Smart Trucks operating within the Western Cape are required to be fitted with vehicle telematics and summary information is to be provided to the WCMD and DoI at least monthly (see Section 5.10).

5.1.3 Vehicle Speed and Travel Time Restrictions

The maximum vehicle speeds for Smart Trucks operating under a permit shall be 80 km/hr. Lower speed limits may be specified under the permit conditions for larger PBS vehicles at the discretion of the issuing authority.

The travel time restrictions for Smart Trucks will be stipulated in the permit conditions and will vary depending on the route, vehicle characteristics and frequency.

Where a 30 km/h speed restriction is imposed on vehicles under this policy it is likely to create a high risk to other road users. Therefore, additional conditions may be imposed such as limiting travel to off-peak hours and/or traffic escorts to minimise safety risks. Prior consultation with the WCG Permitting office is recommended.

5.1.4 Evidence of a Valid Permit

Where a vehicle is used under the authority of this policy is stopped by a law enforcement officer the driver must immediately, upon demand, provide to the officer documentary evidence, electronic or hard copy, that the vehicle is operating under a valid Smart Truck Permit.

Approval to operate under the authority of this policy may be revoked if it is proven that an operator deliberately misrepresents themselves or contravenes any of the permit conditions.

5.1.5 Vehicle Maintenance Requirements

All Smart Trucks are expected to be well maintained. Tyres, suspension and brakes are all expected to be serviced regularly and be maintained in terms of the minimum requirements of the RTMS national standard. Records of all maintenance in terms of component manufacturer's requirements are to be kept meeting the RTMS requirements.

5.1.6 Tyre Pressures

Tyres are to be operated at pressures recommended by either the manufacturer or the Tyre and Rim Associations. The maximum tyre pressures allowable for Smart Trucks will be the following:

Table 5 - Maximum Tyre Pressures

Tyre Type	Max Tyre Pressure (kPa)
Bias Ply	700
Radial	825

Under no circumstances will the load index of the tyre be allowed to be exceeded. No additional carrying capacity is allowable due to speed reductions.

5.1.7 Change or Transfer of Ownership

On **change of ownership**, the new owner (or registered party) shall apply for a permit to the WCMD and DoI in the new area of operation stating the previous Abnormal Vehicle Sequence Number.

Any dispensations applicable to the operator in question may be transferred to the new owner (or registered person) provided that the vehicle(s) remain unchanged. Permits are not transferable and hence a separate application must be made by the new owner (or registered party).

The new owner will only be issued with permits for the Smart Trucks if the applicable fleet has been RTMS-certified for a minimum of 6 months (see Section 2.1).

On **transfer of ownership**, where a transport operator purchases PBS vehicles from another operator, upon applying for a PBS permit, the transport operator must provide:

- Evidence of the full-service history of the truck/truck tractor and trailer(s), and
- A full Dekra technical inspection report.

5.1.8 Purchase of used trucks/truck tractors for use in PBS combinations

Trucks and trailers should preferably be new or still under the manufacturer's warranty. In cases where used trucks/truck tractors are preferred, the following requirements shall be met:

- The truck/truck tractor may not be more than 3 years old.
- The oedometer reading must be less than 300 000 kms.
- The truck/truck tractor shall have a full-service history, either by the OEM or by an RMF-accredited facility.
- The truck/truck tractor shall be sold with a full Dekra technical report.

5.2 Mass Distribution and Overloading

The operation of a Smart Truck is subject to the conditions imposed by the permit, which includes the permissible maximum Vehicle Combination Mass together with the permissible maximum axle masses. Every Smart Truck is required to be weighed prior to leaving its origin and recorded as dictated by the RTMS requirements.

The following mass tolerances will be applied to Smart Trucks operating within the Western Cape.

Table 6 - Allowable PBS Mass Tolerances

Mass to be Checked	Tolerance
Maximum Combination Mass	0%
Maximum Axle and Axle Unit Mass	2%

Any Smart Trucks found in contravention of the maximum masses stipulated on their permit by more than the tolerances allowable will be liable to the appropriate fine. If a PBS vehicle combination is found to have exceeded the mass on the permit at weighbridges, Traffic Officers will hold the vehicle at the weighbridge until a new and correct permit (additional cost) is available or the haulier will need to send another vehicle to transfer some loads to meet the mass limit. Smart Trucks found to be overloaded will be reported to RTMS auditors who, through their auditing processes, can suspend their certification. In addition, the WCG permit office has the authority to revoke or refuse a Smart Truck permit if the operator has been found contravening the mass limitations specified on his/her permit.

5.3 Route Risk Requirements

All Smart Truck applications must be accompanied by a Route Risk Assessment as required by the RTMS standard. Route Risk Assessments are required to be done by a competent person (such as the driver trainer, Depot or Safety, Health, Environment and Quality (SHEQ Manager). Provided that all required aspects are assessed at regular intervals (at least bi-monthly) to ensure that the route is not compromised by construction, or changes in road geometry and to monitor other risks. For route-specific PBS vehicles, the route assessment is included in the CSIR approval report which is valid for five (5) years.

5.4 Operation of Smart Trucks

PBS vehicles will be allowed to operate on a 24/7 basis without red flags, i.e., on the same basis as standard trucks. However, the WCG issuing authority may include a permit condition limiting travel on certain sections of the route, e.g., busy intersections during peak hours.

5.5 Displaying of Abnormal Boards

In the case of PBS vehicles that do not exceed the permissible maximum combination length (of 18.5 or 22 m), such vehicles may operate as standard legal vehicles in terms of the NRTR mass limits on non-approved routes. In such cases both Abnormal boards MUST either be removed or reversed.

5.6 Vehicle Operational Safety Requirements

The following safety regulations apply to all Smart Trucks wishing to operate within the Western Cape:

- Headlights to be on when the vehicle is in operation;
- Amber flashing strobe light on the cab to be operational at all times; and
- Following distance (between Smart Trucks): The driver must keep a minimum following distance of 100 m between consecutive Smart Trucks. Normal following distance requirements apply to all other vehicles.

5.7 Maintenance and Service Rules

The RTMS standard, SANS 1395:2019 (or SANS 1395:2014), has specific requirements regarding the servicing and maintenance of all vehicles that are part of an RTMS-certified fleet. See Section 4.2.4 of the standard.

All PBS trucks, truck tractors and trailers must be serviced in accordance with the manufacturer's/OEM's service requirements. Truck/truck tractor service intervals will be specified by the OEM depending on the nature of the transport operation e.g. mining, forestry, fuel, long haul, short haul. Service intervals can thus vary from as little as 20 000 kms to as much as 70 000 or 80 000 kms. Some trucks now have intelligent servicing systems; therefore, the recommended service interval will vary during the life of the vehicle.

Service intervals for trailers will also vary depending on the nature of the operation e.g., 30 to 60 days for long haul operations and up to three (3) months for short haul operations. Advice from the trailer manufactures should be observed in terms of the specific transport application. The structural integrity of trailers (including the chassis and side-tipper bins) must be always maintained.

5.8 Driver Requirements

The following rules apply to drivers of Smart Trucks within the Western Cape:

- Driver age shall be confined to between 25 and 60 (as in the case of dangerous goods driver requirements).
- Experience within the company and a minimum of five years traceable heavy goods vehicle driving experience. The same applies to drivers of PBS buses. Deviation from the requirement for a minimum of one year with the company will be considered by the Review Panel based on motivation from the operator, e.g., PBS drivers that have moved from another company.
- Driver testing – The recommended tests and frequency that should be considered when formulating a driver testing programme are provided in Annexure D and are derived from the South African Association of Occupational Medicine (SASOM) "Guidelines for Driver Requirements for Fitness to Drive" (SASOM, 2017).
- Driver Screening – Guidelines for driver screening are provided in ANNEXURE D. Note that screening should include psychometric tests to evaluate the driver's ability to deal with anxiety and anger.

- Driver hours are in accordance with the government requirements (Govt. Gazette No. 38142, 31 Oct 2014) and the National Secretary of the National Bargaining Council for the Road Freight and Logistics Industry (NBCFRI) Main Collective Agreement (Govt. Gazette No. 40385, 28 Oct 2016).
- Driver training - Evidence of frequent driver refresher training is required, i.e., at least every six months to minimise complacency.
- Driver training courses must include the following topics:
    1. Differences in driving a standard heavy vehicle and a PBS vehicle.
    2. PBS permits: understanding the purpose and requirements.
    3. Dimensions: what is permitted and is not permitted and the effects of increased dimensions.
    4. PBS routes: why routes are specified and why no deviations are allowed.
    5. Increased combination mass: how it affects vehicle handling.
    6. Impact of PBS vehicles on other road users, congestion and road furniture.
- Fatigue warning - "Graveyard" shifts (Between 00h00 and 06h00) should be monitored closely. Controllers should contact drivers on this shift at regular intervals and these checks must be logged.
- Driver wellness – PBS drivers should be part of a recognised occupational health programme, conducted by competent accredited persons, which should be in line with the South African Society of Occupational Medicine (SASOM) "Guidelines for Driver Requirements for Fitness to Drive" (SASOM, 2017) and should include, but not be limited to:
    - Bi-annual medicals as per the SASOM Guidelines.
    - A six-monthly programme that includes:
        1. Monitoring and control for hypertensive employees.
        2. Monitoring and control for diabetic employees.
        3. Monitoring for chronic or relapsing disorders that may impair cognitive or executive motor function.
        4. Screening for pulmonary tuberculosis.
        5. Fatigue management.
        6. Drug and alcohol screening that complies with current legal protocols.
        7. Return to work reassessment for drivers having been absent for longer than five (5) days.
        8. Programme for medical reassessment immediately or soon after any incident.

- If any abnormalities are detected, the medical practitioner/clinic will request further examination, e.g. defective vision may require further specialised ophthalmological tests before a diagnosis is made.
- All drivers are required to undergo alcohol screening at:
    1. Commencement of a shift, and
    2. Randomly on completion of a shift.
- All drivers should be adequately remunerated.

5.9 Accident Reporting

In the case of a crash or accident involving a PBS Vehicle, the following procedures must be followed:

- Within 24 hours of the occurrence, the operator must inform the WCG Permit Office in which the accident occurred both verbally and by e-mail,
- A preliminary written report must be submitted to the provincial authority within 72 hours,
- A final report completed and submitted to the provincial authority within 7 days, and
- A copy of the final crash report must be included with the monthly Smart Truck monitoring report.

5.10 Data Collection and Monitoring

The following data **per PBS vehicle** is required to be submitted to the WCG monthly, in PDF or MS Excel format and to the Smart Truck Portal (currently managed by the RTMS NPC office) in MS Excel format:

- Combination mass and axle/axle unit masses per trip.
- Speed profile including average speed per month.
- Routes travelled (Vehicle tracking system output).
- Number of trips per month.
- Tons transported per month.
- Average payload per month.
- Total and average fuel consumption per month.
- Total distance travelled per month.
- Record of incidents/accidents (RTMS requirement).
- Driver hours (RTMS requirement).
- Driver Performance reports must be generated from the vehicle management system.

PBS monitoring data will be used for research purposes, and may be published in anonymised form, for example in technical reports, presentations, conference papers and journal papers.

The following data are required to be submitted to the WCG monthly for all PBS vehicles:

- Excel Spreadsheet showing the following:
  - Date of Trip,
  - License Numbers of PBS Vehicles,
  - Axle Masses per trip, and
  - Combination mass per trip.
- Satellite Tracking Records. The satellite tracking records must show the routes travelled in the respective provinces during the reporting month on a map. The map of the Satellite Tracking Records must show the following details:
  - License Number of the vehicles or a fleet number,
  - Start of Reporting Period Date and Time,
  - End of Reporting Period Date and Time (This will need to reflect the Calendar Month of Reporting), and
  - One map per vehicle must be submitted. The map should preferably appear as a TAB in the Excel Spreadsheet.

6 Route Requirements

6.1 Alternative Routes

In general, permits should be processed using the route desired by the applicant. However, if the proposed route involves either of the following:

- Pavements sensitive to higher than legal axle loading, or
- Bridges which cannot accommodate higher than legal mass limits or axle loadings.

The technical engineer(s) reviewing the permit application may require that an alternative route be used.

6.2 Use of National Roads

As a general policy, National Roads are the preferred routes for Smart Trucks to travel along and should be permitted wherever practically possible except for the following vehicles:

- Those that cannot be operated safely at 80 km/h, or
- Those restricted as a condition of the overweight permit to a maximum speed of 50 km/h or less.

In some cases, evidence of the vehicle's capability may be required from the vehicle manufacturer.

The WCG technical engineer(s) may, in the interest of road safety or infrastructure protection, recommend alternative routes to the national roads based on knowledge of local conditions.

In general, Smart Trucks should be allowed to use the national road network in preference to urban roads and streets. The principal restriction on the use of national roads should be those vehicles that impose a hazard because they are incapable of operating safely at a reasonable speed.

7 Mass Determination and Enforcement

7.1 Weighing Procedures

7.1.1 General Guidelines

All weighing shall be done in accordance with the following guidelines:

- The vehicle combination shall be weighed using **Weigh Mats or Weighbridges**,
- All weighing shall be **supervised by either a law enforcement officer, an approved consultant or one of the WCG technical engineers**, and
- The weighing record **must include a concise description** of the **vehicle** and its **loading condition**, including the extent of operating gear carried and the **description and position of the payload**.

7.1.2 Weighing for Permit

The **permit issuing officer** or any of the technical engineers involved in abnormal loads **may require the vehicle to be weighed at a specific locality as a condition of the permit**. This will require either:

- That confirmation of axle masses from a certified weighing facility be sent to the permit issuing officer clearly indicating the permit serial number, or
- The weighing be done under the control of a person nominated by the permit issuing officer (as outlined in section 7.1.1).

In addition, the WCG permit office may, by exception, require evidence of satisfactory load sharing of vehicles with unusual or nonstandard axle/suspension configurations.

7.2 Determination of Axle Masses by Calculation

7.2.1 Principles

Individual axle masses can be determined for multi-axled vehicles by calculation. Calculations require the following information:

- Vehicle dimensions and axle tare masses; and
- Payload position and mass.

Dimensional and tare mass can be found on the homologation certificate for the vehicle. **Payload masses can be obtained from manufacturers' assessments or from previous weighing**.

The payload is distributed to the axles and added to the tare axle masses. The distribution method involves considering each rigid section of the vehicle and proportioning the load on that section to the supporting sections.

Some allowance should be made for the possibility that the payload centre of gravity may vary from the assumed position.

7.3 Enforcement

7.3.1 Offences of Overweight Permits

Law enforcement officers may, at any time, stop and weigh a vehicle travelling under a permit, at either weighbridges or weigh mats, where applicable. **Officers are authorised to divert vehicles** operating on Smart Truck permits **from the approved route** (to a **maximum of 20 km off route**) to weigh, provided understrength bridges are not included on the route.

If the **vehicle is found to be in breach of any of the conditions set by the permit**, then:

- **The permit is no longer valid and is cancelled unless it is revalidated by a law enforcement officer following successful adjustment of the load**,
- **The vehicle must remain at the point of weighing until a new Smart Truck permit has been obtained, or the load adjusted to comply with the permit mass and the original permit has been revalidated**,
- **The officer will issue an infringement notice for breach of the permit in every instance (they may also issue notices for any other offences detected)**, and
- **The officer will issue an overloading fine calculated from the legal mass limits**.

Unless the permit is revalidated by the law enforcement officer following adjustment of the load, an application must be made to the original permit issuing office for a new permit to be issued for the entire journey. Time will have to be allowed to enable the new details to be processed.

The officer will not waive overloaded offences until they have inspected the revoked replacement permits and are satisfied. If a gross overload offence was committed, the driver must be arrested in terms of section 33 of the NRTA.

Major offences include:

- No permit held.
- Incorrect route used.
- Different vehicles used.
- Different load carried.
- Permitted speed exceeded.

The classification of offences and sanctions are given in ANNEXURE C, while the PBS vehicle permit checking process is displayed in Figure 1.

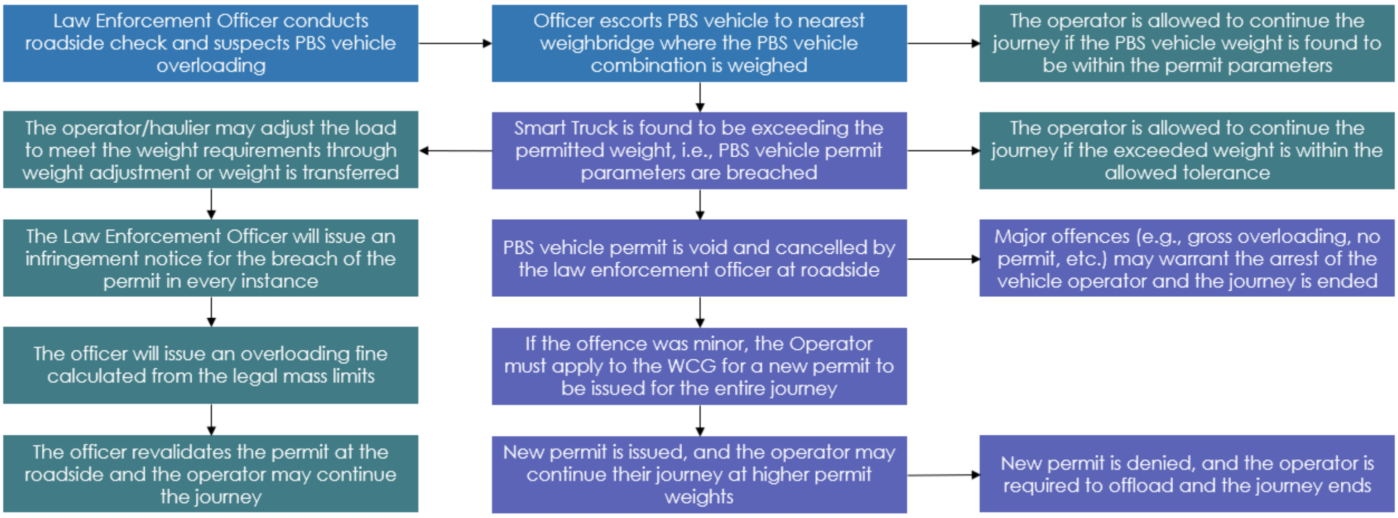

Figure 1 - PBS Vehicle Permit Checking Processes

ANNEXURE A

Former Minister of Transport Mr. RADEBE's PBS Support Letter from 2006

DEPARTMENT OF
TRANSPORT REPUBLIC OF
SOUTH AFRICA
Prlvote Beg X193, Pretoriil, 0001
ForumBuilding, cor Strubeo a.no 5osman Streets, Pretorl"

The Chairperson: Mr Sipho Khumalo

National LAP Steering Committee

C/O PO Box 74320

Lynnwood Ridge PRETORIA

0040

Dear Mr. Sipho Khumalo

RE: SUPPORT FOR PILOT PROJECT: PERFORMANCE BASED STANDARDS FOR HEAVY VEHICLES

Your correspondence dated 24 November 2005 with the above title refers:

I have received and considered your request and wish to begin by thanking you and your committee for supporting the implementation of my Department's National Over1oad Control Strategy (NOCS). I wish to indicate that my department fully supports the self-regulation approach because it contributes tb the overall aim of improving the productivity of the logistics value chain which will in turn contribute to the economy.

With reference to the specific request to support the proposed Performance Based Standards (PBS) pilot project, I wish to indicate that the DOT supports this initiative with the following provisions:

- The DOT supports the initiative with the understanding that it seeks to improve system efficiency by optmising •truck payloads, improving truck safety and protecting road infrastructure through innovative vehicle design and technology application.

- It should be realized that because the pilot project will see the development of trucks that exceed current dimension and load limits e.g. GCM/GVM of 62-67 tons (current limit 56 tons) or vehicle length of 25m (current limit 22m), the abnormal load dispensation should be pursued for pilot purposes. If this is granted, the vehicles will need to be restricted to specific routes to limit safety risks and road damage with a clear understanding that the pilot is for a limited period only.

- The DOT maintains that exceeding current load limits should only be restricted to the pilot project for testing purposes if such approval Is obtained. For full-scale roll-out, the heavy vehicle owners will need to demonstrate innovation in increasing payload through vehicle design and technology within the current load and dimension limits (as has been done in the timber industry). If government is convinced that vehicle owners have explored this approach sufficiently, then the larger vehicle load and dimension concessions can be considered for vehicle owners that have a proven record of self-regulation (e.g. those within the Heavy Vehicle Load Management System or those complying with national standards in this regard).

- The DOT gives support for the initiative, but the National LAP Steering Committee, PBS Committee and interested industry players such as Sappi and Mondi should approach the relevant road traffic authority through the MEC in charge to request approval and granting of an abnormal load permit for the proposed pilot project, and the definition of designated routes.

- Government acknowledges the Heavy Vehicle Load Management System to be an industry-led process and will support it as such in accordance with the recommendations of the NOCs.

- As The government will continue to implement its regulatory interventions and ensure compliance with legislation through intensified law enforcement while acknowledging any specific concessions that may be granted to the self-regulation initiatives.

I thank you for your initiative and encourage you to continue with your support of key government programmes.

Yours Sincerely.

JE F RADEBE, MP
MINISTER OF TRANSPORT

DATE: 18/01/2006

Former Minister of Transport Ms. Chikunga's Stance on PBS in 2023

MINISTER
TRANSPORT
REPUBLIC OF SOUTH AFRICA

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Mr. Ricardo Mackenzie, MPL
MEC: Mobility, Western Cape
Room 832, 8th Floor
9 Dorp Street
Cape Town
8300

Dear Mr. Mackenzie

STATUS OF THE PERFORMANCE BASED STANDARDS (PBS) SMART TRUCK PILOT PROJECT

1. My previous correspondence dated 2 September 2023 on the subject matter is hereby withdrawn with immediate effect and superseded by this letter.

2. I must thank your Department for the role it has played in the Performance Based Standards (PBS) Pilot Project, a project undertaken by the Department of Transport in conjunction with the Council for Scientific and Industrial Research (CSIR).

3. I have no doubt you appreciate the many challenges we are faced with as a country, with specific reference to road safety, protection of the road infrastructure and the environment, while we have a corresponding obligation of enabling economic activity that must give expression to economic growth and stability. The Department therefore unreservedly encouraged and supported the Pilot Project that was running since 2007.

4. This project has as its objectives the assessing of potential significant benefits related to heavy vehicle safety; congestion on the road network; road infrastructure protection; reducing transport costs and reducing heavy vehicle carbon emissions.

5. Please note that the CSIR presented "The Smart Trucks and Performance- Based Standards (PBS) For Road Freight Transport In South Africa Pilot Project Evaluation Report 2007-2020", to the Department on 15 March 2021, with a recommendation to formalise the project.

6. After due consideration, the Evaluation Report will be presented to the Committee of Transport Officials (COTO) for recommendation and decision of the Ministerial and Member of the Executive Committee (MINMEC) at the earliest opportunity.

7. Please be advised therefore that in terms of section 81(1) of the National Road Traffic Act, 1996 read together with its Regulations, I will no longer grant any new approvals for new PBS trucks until a decision has been made by MINMEC in this regard.

8. Further note that the MEC, in issuing any new authorisations for PBS trucks, in terms of section 81(2), the operator must produce an accreditation certificate, in the format attached hereto for ease of reference.

Kind regards

Ms Lydia Sindisiwe Chikunga, MP
MINISTER OF TRANSPORT

DATE: 2023/11/10

ANNEXURE B

Detailed application guidelines for the operation of Smart Trucks as part of the Smart Truck Demonstration project: Applications for Concept Approval

1. The letter of application should clearly state that the operator wishes to participate in the Smart Truck demonstration project that is being coordinated by the National Department of Transport's Smart Truck Review Panel and Provincial Road Authorities supported by the CSIR.

2. The operator must be certified in terms of the Road Transport Management System (RTMS) accreditation scheme. The fleet in which the proposed Smart Truck will operate must have been RTMS-certified for a minimum of six months at the time of commissioning of the Smart Truck(s). A copy of the current RTMS certificate must be submitted with the application OR a confirmation that the RTMS-certification process has commenced and that the commissioning of the proposed Smart Trucks will only take place after the depot has been RTMS-certified, i.e., has met the requirements of the RTMS standard through an audit for a minimum period of six months.

3. The application letter must specify the make and model of the truck/truck tractor. More than one make/model truck/truck tractor may be specified. The trailer manufacturer must also be specified.

4. The application letter must specify the number of Smart Truck vehicle combinations the operator wishes to utilise on the specified route(s).

5. The application letter must include a summary of the vehicle combination masses and dimensions, e.g. maximum overall length, width and height, maximum combination mass and payload and clearly indicate the National Road Traffic Act (NRTA) Regulations with which the proposed vehicle combination does not comply.

6. The application letter must specify with which PBS Level (1, 2, 3 or 4) the proposed Smart Truck design intends to comply. Level 1 will generally be required for multiple routes. Level 2 is applicable to major freight routes. Levels 3 and 4 are generally reserved for remote routes with suitable road geometry, i.e., roads with low traffic volumes, flat gradients and large horizontal curvatures.

7. A general arrangement drawing of the proposed Smart Truck must accompany the letter requesting operational approval. The drawing must clearly indicate all key dimensions (such as total vehicle combination length and dimensions between axle centres) as well as laden and unladen (tare) axle masses, the maximum combination mass and maximum payload. Maximum axle and axle unit masses may not exceed the permissible maximum axle and axle unit masses as specified in the NRTA Regulations. The maximum combination mass applied must include any tolerance required for the specific

payload i.e., no additional mass tolerance above the approved maximum combination mass will be allowed at law enforcement weighbridges.

8. A detailed description of the route(s), including a detailed map, on which the proposed Smart Truck will operate, must also be attached to the letter of application. One or more of the proposed routes(s) may be rejected by the Department depending on factors such as route geometry and traffic volumes.

9. The applicant may choose to submit preliminary PBS infrastructure and safety assessments together with the letter of application for concept approval, but these assessments are only required to be done after Concept Approval has been obtained and will need to be submitted to the Smart Truck Review Panel for review. The assessment must show that the proposed Smart Truck passes the heavy vehicle safety analysis and must be shown to cause less road wear per ton of payload than the "baseline" vehicle combination that is currently operational. The baseline vehicle must be a realistically efficient legal vehicle combination for the freight task in question. The calculation methodology for the road wear assessment must be based on the Mechanical-Empirical assessment approach that is the basis for the new SA Pavement Design Manual.

10. An important principle of the Performance-Based Standards approach to heavy vehicle operations is that an overall improvement in terms of criteria such as road wear, truck safety performance, congestion, number of truck trips, fuel efficiency and emissions is achieved. This balanced approach will result in benefits to all affected parties i.e. the consignor, the consignee, the transport operator, the road authority and other road users. Thus, the vehicle design must not only address the needs of the transport operator but must actively seek to improve the situation from the Road Authority's perspective.

ANNEXURE C

Classification of Smart Truck Offences regarding the Operation of Smart Trucks and the Appropriate Sanctions to be imposed for such Actions

Class A Offences

Offences include the **Unauthorised Modification of a Smart** Truck, characterised as any change in the parameters of the physical PBS vehicle as specified in the approved design of the PBS vehicle.

The operator will be sanctioned with immediate withdrawal of the Smart Truck Permit and suspension of RTMS accreditation. The operator is required to reapply for Smart Truck Permit using a design which matches the homologation certificate.

Class B Offences

Offences include:

- **Overloading**: Overloading of axle groups and combination mass as specified on the Section 81 Permit. A five per cent tolerance on axles and axle units will be permitted subject to the five per cent not exceeding the manufacturer's rating for the axle/axle unit. There will be no tolerance permitted on the combination mass for vehicles operating under Section 81 Exemption Permit.
- **Off-Route Operation of a PBS Vehicle**: A Smart Truck may not operate on any routes other than those specified in the Section 81 Exemption Permit. In the event of a vehicle leaving a prescribed route due to unforeseen circumstances such as an accident, the operator must report such to the Permit Office in the form of a signed affidavit, witnessed by a commissioner of oaths by no later than 13:00 on the next working day of the Permit Office.
- **Speeding**: All Smart Trucks must operate at the speed limits specified on the Section 81 Exemption Permit or at a lower speed where the route is signposted as such.

The operator will be sanctioned with a written warning will be sent to the operator on the offence. Three such letters in a six-month period will result in the withdrawal of the Section 81 Exemption Permit.

Class C Offences

Offences include:

- **The refusal to supply information pertaining to a Smart Truck**: All information pertaining to any Smart Truck requested by the Administration must be supplied by the operator within 10 calendar days of a written or verbal request.

- **Failure to supply Vehicle Monitoring Records**: All operators of Smart Trucks are required to submit to the Permit Office records of satellite tracking for each Smart Truck by no later than the 5th day of the month after the reporting month.
- **Non-compliance of Section 81 Permit Conditions**: The permit conditions as contained in the Section 81 Exemption Permit must be complied with at all times.

The operator will be sanctioned with a written warning will be sent to the operator regarding the offence. Four letters of this nature in a six-month period will result in the withdrawal of the Section 81 Exemption Permit.

ANNEXURE D

Structure of a Driver Testing Programme

The following tests and frequency should be considered when formulating a driver testing programme. See "SASOM Guidelines for Driver Requirements for Fitness to Drive" for suggested "routine" minimum medical standards.

Test Selection

- Interview:
  - Seek out chronic disorders as listed in the section "Criteria for Fitness to Drive". Record the date of diagnosis, medication and any hospitalisation or complications.
  - Screen for signs of fatigue, and risk factors for becoming fatigued.
- Examination: (areas of particular interest)
  - Sensory functions (vision, hearing & proprioception)
  - Neuro-musculoskeletal (mobility, coordination, motor control)
  - CNS (clarity of thought), including:
    - Chronic or relapsing disorders that may impair **cognitive** or **executive motor function** (cardiovascular, endocrine, neurological, infection (notably HIV) and substances)
    - Risk of sleep apnoea (with daytime somnolence)
- Special tests:
  - Vision tests (NB: refer to the SASOM vision standard)
    - Mandatory: **Visual Acuity** (far & near); **peripheral vision**; **colour** (primary colours).
    - As applicable to the setting, and within the guidelines of the Vision Standard: depth perception, "night" vision.
  - Additional tests where clinically indicated:
    - Diabetics should all have a random blood glucose and HBA1c.
    - Cardiac issues may require an ECG (e.g., abnormal dysrhythmia, severe hypertension, ischaemic heart disease).
  - Tests for substance abuse: (should be used in tandem with a substance abuse policy)

    - alcohol (blood **GGT**; if elevated and alcohol suspected, proceed to **CDT**)
    - drugs of abuse, including:
        - Minimum **core 5-panel**: **cannabis**, **opiates** (includes codeine, morphine, heroin), **amphetamines** (includes methamphetamines (“TIK”) & methcathinone (CAT)), **cocaine**, **benzodiazepines**.
        - Also consider: **MDMA** (“Ecstasy”)

        Note: Mandrax (methaqualone) is not screened for, because it is always used in combination with cannabis, so users will be identified through a positive THC test.

- Where there is exposure to hazards, appropriate surveillance testing must be included: e.g., audiometry, spirometry, FBC (chemicals), AST, and ALT (chemicals).
- Psychometric tests: to evaluate the driver’s ability to deal with anxiety and anger.

General Overview

<table>
<tr>
<td rowspan="2"><u>At Pre-Placement</u>
• Interview clinical exam (see above).
• Vision tests (as above).
• Fatigue questionnaires.
• GGT (CDT if indicated).
• Urine for substance abuse (see above).
• Surveillance tests, as indicated by job exposures (audio, PFT, FBC) – as baselines.
• If indicated by clinical findings: (PFT, ECG).</td>
<td><u>At Periodic Assessment</u>
• As for pre-placement.
• Surveillance tests, as indicated by job exposures (audio, PFT, FBC).</td>
<td rowspan="2"><u>At Exit</u>
• Interview, brief clinical exam.
• Surveillance tests, as indicated by job exposures (audio, PFT, FBC).</td>
</tr>
<tr>
<td><u>Test Frequency</u>
• Standard interval is annual but maybe sooner if indicated. For healthy drivers <45 years old, every 2 years).
• PrDP maximum legal interval is 24 months.
• Surveillance intervals as indicated by the appropriate legislation.</td>
</tr>
</table>

General Points

- It is important that written informed consent must be obtained. See the SASOM standard for informed consent.
- When a driver is examined for the first time by a health professional more time should be allocated to history taking and the gathering of relevant information.

- The health professional performing the evaluation must have discretion in each case to include or exclude any of the actions prescribed in the protocol.
- Where an established on-site occupational health service is not in operation, it is advisable to make use of the same health professional/practice to maintain continuity.
- Ensure the levels of competency of the health professionals involved in the testing are appropriate to the risks, and that the registration of the certifying professional is compliant with the legal requirement.
- It is recommended that a "return to work evaluation" be conducted after significant ill health absence (e.g. >10 days), especially for category 2 & 3 drivers.

Acronyms

Acronym	Complete Term	Brief Description
GGT	Gamma Glutamyl Transpeptidase	A liver enzyme that is elevated when certain hepatic metabolic processes are stimulated, such as in cases of long-term excessive alcohol consumption. However, it is elevated in a variety of circumstances, so should only be used as a screening tool; further testing should be done (e.g. CDT), to confirm a link with alcohol consumption.
CDT	Carbohydrate-Deficient Transferrin	A serum protein that is elevated in excessive alcohol consumption. Also, may be elevated in the following circumstances: • Rare genetic variants of transferrin (<1%). • Rare inborn error of glycoprotein metabolism. • Severe hepatic insufficiency. • Pregnancy (especially after the first 10 weeks of pregnancy). It has been established that occasional 'binge' drinking does not increase serum CDT levels. Regular heavy drinking is required to elevate levels significantly. The sensitivity of the test for males is then 93% and the specificity 98%. For females, sensitivity is 81% and the specificity remains at 98%.
HBA1c	Glycated (Glycosylated) Haemoglobin	A form of haemoglobin that represents the average plasma glucose levels for the preceding 3 months.
FBC	Full Blood Count	A laboratory test in which a variety of haematological parameters are measured including: • red corpuscle parameters (including haemoglobin levels), • white blood cells, and • platelets.
AST	Aspartate aminotransferase	An enzyme is found in the heart, skeletal muscle, brain, kidney, and liver. May be elevated in myocardial infarction, heart failure, myocarditis, pericarditis,

		myositis, muscular dystrophy, trauma, hepatic disease, pancreatitis, renal infarct, eclampsia, neoplasia, cerebral damage, seizures, haemolysis, ethanol.
ALT	Alanine aminotransferase	An enzyme specific to the liver. May be elevated in hepatitis, cirrhosis, liver metastases, obstructive jaundice, infectious mononucleosis, hepatic congestion, pancreatitis, renal disease, and ethanol ingestion. Alcohol-related liver injury, where the AST: ALT ratio frequently is > 2.
PFT	Pulmonary Function Test	A test of the lungs' ventilation capability by means of spirometry.

ANNEXURE E

PBS Vehicle Commissioning Checklist for Transport Operators

Vehicle Unit	Parameter to be Checked	Value obtained by Operator/ OEM	Additional Comments
Prime Mover	Prime mover VIN		
	Abnormal load board fitted with 200mm lettering?		
	RTMS and Smart Truck boards fitted?		
	900mm amber strobe light fitted?		
	Load cells fitted or planned to be fitted?		
	GCM on the VIN plate of the vehicle?		
	Rim material used		
	On which axles are stabilizers fitted? (specify model)		
	Tyre size on steer axle(s)		
	Tyre size on drive axle (s)		
	Suspension model on steer axle(s)		
	Suspension model on drive axle(s)		
	Front overhang from steer axle		
	Overall length of combination		
	Fifth wheel offset from centre of drive axle group		
	Fifth wheel height from floor		
Leader Trailer	Lead Trailer VIN		
	Tyre size on leader trailer		
	Fifth wheel height on leader trailer		
	Fifth wheel offset from centre of axle group		

	Suspension model on leader trailer		
	Maximum trailer height at front of trailer (bin lip)		
	Maximum chassis height at rear of trailer (bin lip)		
	Rim material used		
	Maximum loading height indicated (if applicable)		
Follower Trailer	Follower Trailer VIN		
	Tyre size on follower trailer		
	Suspension model on follower trailer		
	Maximum trailer height at front of trailer (bin lip)		
	Maximum chassis height at rear of trailer (bin lip)		
	Wheelbase (fifth wheel to centre of trailer axle group)		
	Rear overhang from centre of last axle		
	Rim material used		
	Abnormal load board fitted with 200mm lettering?		
	Maximum loading height indicated? (if applicable)		

ANNEXURE F

Specification for a Smart Truck Board

Blue		Yellow		Grey	
C	84	**C**	7	**C**	27
M	62	**M**	4	**M**	21
Y	0	**Y**	93	**Y**	21
K	0	**K**	0	**K**	0

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Western Cape Mobility Department

Chief Directorate: Management and Strategic Support

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